Cooperative State Planning And Research Program: Part II

OCTOBER 1995 – SEPTEMBER 1996: SPR-0010(962)

TRANSPORTATION RESEARCH AND DEVELOPMENT BUREAU
NEW YORK STATE DEPARTMENT OF TRANSPORTATION
State Campus, Albany, New York 12232-0869

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COOPERATIVE STATE PLANNING AND RESEARCH PROGRAM
PART II: 10/95 - 9/96
SPR-0010(962)

September 1995

TRANSPORTATION RESEARCH AND DEVELOPMENT BUREAU
New York State Department of Transportation
State Campus, Albany, New York 12232-0869

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PREFACE

This work program is a statement of the transportation research and development activities that qualify for reimbursement from Federal Cooperative State Planning and Research funds. It describes the work that will be performed during the program period.

The projects that were completed during the last six months are listed in Section VII. In addition, this section includes a listing of reports published during this period and the Experimental Features that are evaluated as part of an SPR Project. It is the intent of this section, in combination with the rest of this report, to serve as one of the two semi-annual reports on research progress.

Section VIII contains a listing of all ongoing non-federally funded research projects. This section in combination with the rest of the report serves to display the total research program.

Section I	Technical Assistance & Technology Transfer Program
Section II	Experimentation Program: Type A & B Continuing Studies
Section III	Experimentation Program: Pre-Project Planning
Section IV	Proposed Projects Not Yet Initiated
Section V	Pooled SPR Fund Projects
Section VI	Administration/Training
Section VII	Completed Projects
Section VIII	100% State Funded Projects

All allocations for salaries include an estimated fringe benefit factor of 33.79 percent (annual salary x .3379). The actual factor will be established by the Department of Audit and Control and the Division of the Budget, and represents the employer's share of workers compensation, hospitalization, retirement fund charges, and other contributions.

FUNDING SUMMARY

SPR PART II	FA NUMBER	80% FEDERAL	100% FEDERAL	TOTAL
RESEARCH PROGRAM (See Table 1 for details)	086-0010-962	**2,813,400**		**2,813,400**
FUNDED ACTIVITIES				
TRB GENERAL SUPPORT			208,000	208,000
NCHRP	086-0004-195		1,048,000	1,048,000
POOLED FUNDS			426,000	426,000
LTAP	086-LTAP-951	170,000		170,000
IVHS PROGRAM COOR.		112,000		112,000
TOTAL PART II		**3,095,400**	**1,682,000**	**4,777,400**
100% STATE FUNDED ACTIVITIES (See Section VIII for details)	PIN NUMBER			**TOTAL**
ADMIN. STATE FUND	R01001801			90,000
UTRC-WICK DRAIN	R01242801			5,000
UTRC-CURING	R01239801			30,000
TOTAL 100% STATE				**125,000**

TABLE 1
SUMMARY OF COOPERATIVE STATE PLANNING AND RESEARCH PROGRAM:
SPR–0010(962) PART II 10/95 – 9/96

Project Number	Project Title & Research Supervisor	Annual Plan
10–01	Administration	250,000
10–02	Administration – Proj Selection/Prog Development	100,000
10–03	Administration – UTRC	12,500
10–04	Administration – Consortium/Contract Research	58,000
16–00	Training	70,000
	Subtotal	490,500
TECHNICAL ASSISTANCE AND TECHNOLOGY TRANSFER PROGRAM		
11–0	Information Exchange	280,000
11–01	Engineering Soils Survey (Reagan)	9,000
11–02	Information Exchange – Library Operations (Frederick)	95,000
11–03	Information Exchange – Newsletters (Frederick)	30,000
11–04	Information Exchange – Library Support (Frederick)	23,000
12–0	Consultation	500,000
12–22	FHWA/SHRP–LTPP (Yang)	40,520
12–28	ERTAP Consultation	15,000
12–38	Consultation – Statistics (Sandhu)	82,500
12–40	Reevaluation of Culvert Design procedures (Sandhu)	3,500
12–44	Specs for Traffic Noise Barriers Using Recycled Plastic (Fu)	30,000
12–48	SHRP Superpave (Yang)	50,000
12–49	Falling Weight Deflectometer (Yang)	100,000
12–52	Geosynthetic Slopes and Retaining Walls (Fu)	12,000
12–54	Field Monitoring of Loads on Traffic Signal Poles (Fu)	25,000
12–55	High Cost Disposal of Parts Cleaning Solvent (Yang)	10,000
12–56	Cost Effective Use of Shoulder Rumble Strips (Yang)	27,000
12–57	Loss of Entrained Air Hardened Concrete (Yang)	20,000
13–0	Implementation	35,000
13–10	Implementation of Glasgrid (Sandhu)	7,500
13–11	Hypertext Implementation for Construction Manuals (Torre)	44,000
13–14	Implementation – SHRP Products (Valenti)	75,000
14–01	Local Technical Assistance Program (Valenti)	5,000
15–01	Engineering Computer Systems Support (Sandhu)	86,000
20–00	Contract Research (Sandhu)	200,000
20–02	Imp Safety for Snow Plow Reduced Visability (Amsler)	60,000*
20–03	Cost Eff of Consolidating Gov Hy Sys (Fahrenkopf)	59,030*
20–04	Eff Mkt of Transit Systems and HOV (Svejkovsky)	127,055*
20–05	Rev and Dev of Life–Cycle Cost and Networking (Shufon)	130,325*
20–06	Lateral Protection Short–Term Work Zones (Mencucci)	80,000*
	Subtotal	1,805,020
EXPERIMENTATION PROGRAM: TYPE A CONTINUING STUDIES		
212–1	Determining Overload Capacity of Bridges (Fu)	5,000
214–1	Performance of Two Rubber–Modified Asphalt Overlays (Yang)	10,000
224–1	Development of an Overlay Design Procedure for NYS (Yang)	47,000
225–1	Hydr–Frac Test Apparatus & Proc Deter Aggregate Durability (Yang)	65,000
	Subtotal	127,000
EXPERIMENTAL PROGRAM: TYPE B CONTINUING STUDIES		
192–1	Effectiveness of Hand Signal Devices (Sandhu)	5,600
213–1	Evaluation of Design Methods for Sprayed Seals (Sandhu)	500
215–1	Deicer Uses (Yang)	10,000
217–1	Deter on Long–Term Perf of Chem Grouts in Concrete (Sandhu)	10,500
218–1	Engineering Automation Tool Evaluation/Implementation (Green)	5,000
220–1	Evaluation of Winter Traffic Accidents (Sandhu)	31,500
	Subtotal	63,100
EXPERIMENTATION PROGRAM: PRE–PROJECT PLANNING		
	Subtotal	0
EXPERIMENTATION PROGRAM: PROJECTS NOT YET INITIATED/CONTINGENCIES		
	Projects Not Yet Initiated	100,000
	Consultations Not Yet Initiated	201,500
	Contingencies	26,280
	Subtotal	327,780
GRAND TOTAL SPR–0010(962) PART II FY 10/95–9/96		2,813,400

* Prior year funds; not included in total.

Table 2A
PROJECTS NOT YET INITIATED: SPR-0010(962) Part II

ERTAP PROJECT NUMBER	TITLE	ERTAP CLASSIFICATION*	ESTIMATED TOTAL PROJECT COSTS	ESTIMATED 1995-96 COSTS
	ERTAP APPROVED SUMMER 1993			
93-052	Development of Improved Pavement Performance Prediction Model	1	120,000	0
93-080	Analysis of Innovative Wall Systems	1	160,000	0
	ERTAP APPROVED SUMMER 1994			
94-029 94-039	Pile Load Distribution and Earth Pressure for Integral Abutments	1	200,000	100,000
			$480,000	$100,000

*ERTAP Classification

1 — Research project, applied
2 — Research project, fundamental
3 — Technology Transfer
4 — Consultation

Table 2B
CONSULTATIONS NOT YET INITIATED: SPR-0010(962) Part II

ERTAP PROJECT NUMBER	TITLE	ESTIMATED TOTAL PROJECT COSTS	ESTIMATED 1995-96 PROJECT COSTS
93-082	Temperature Gradients in PCC Pavement for Different Regions in NYS	40,000	0
93-084	Problem of Life Cycle Cost of Curbing	20,000	16,500
94-003	Fascia Concrete Spall Failure	30,000	10,000
94-005	Investigation of Adjacent Prestressed Concrete Beam Spacing and Joint Alternatives	30,000	25,000
94-027	Effect of Vehicle-Generated Heat on Asphalt Pavement Rutting	50,000	0
94-028	Impact Performance of Temporary Concrete Barrier Installed Transverse to the Roadway at Roadway Closure Sites	49,000	0
94-033	Destructive Testing of Prestressed Concrete Beams	250,000	150,000
94-051	Analysis of Historical Cost Data	30,000	0
		$499,000	$201,500

DETAILS ON EACH CONSULTATION IS LOCATED IN SECTION 4 OF THE 1994-95 BRIEFING BOOK.

Note: Consultations are not in an ERTAP-rated priority order.

TABLE 3
100% SPR POOLED–FUND PROJECTS: SPR–0010(962) PART II

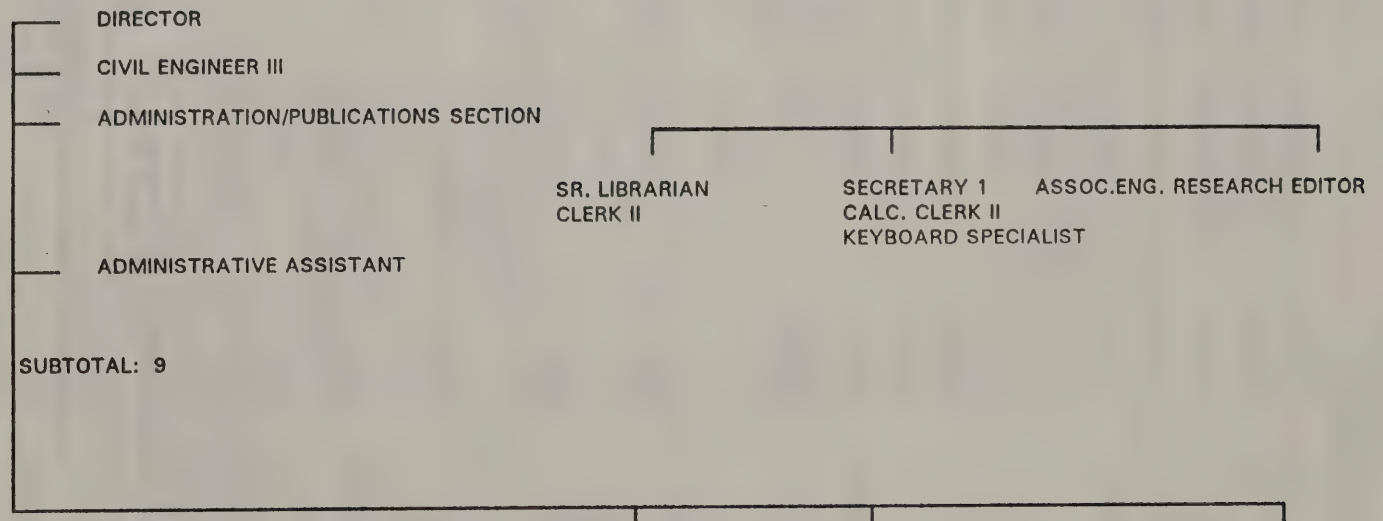
TITLE OF STUDY	SPR–2	FUNDING COMMITMENT	FY 1995	FY 1996	FY 1997	FUTURE
EXISTING NATIONAL STUDIES						
Durability of Geosynthetics	(155)	18,000	1,000			
Performance Evaluation of Crumb Rubber Modified (CRM) Asphalt Pavements	(166)	35,000	5,000	5,000	5,000	10,000
Management of Discharge and Quality of Highway Runoff in Karst Areas to Control Impacts to Ground Water	(168)	30,000	10,000	0	0	0
High Strength Concrete for Bridges	(170)	80,000	20,000	20,000	20,000	0
Predicting HOV Facility Demand	(171)	30,000	10,000	10,000	0	0
Aerial Platform System for Bridge Inspection (Phase II)	(172)	40,000	20,000	0	0	0
Evaluation of Crumb Rubber Modified Asphalt Pavements	(174)	25,000	10,000	5,000	0	0
Development of Standard Reference Soils	(175)	15,000	5,000	5,000	0	0
Seasonal Changes In Pavement Material Properties	(178)	15,000	7,500	0	0	0
Load Testing of Instrumented Pavement Sections	(179)	25,000	12,500	0	0	0
National Vehicle Detector Test Center	(181)	40,000	20,000	20,000	0	0
Development and Validation of Traffic Data Editing Procedures	(182)	45,000	15,000	15,000	15,000	0
EXISTING REGIONAL STUDIES	SPR–3					
Advanced Technologies for Pavement Instrumentation	(027)	2,200	2,200	0	0	0
PENN DOT Epoxy ReBar Study	( )	150,000	0	150,000	0	0
Eastern States Institutional Issues Study for Commercial Vehicle Operations	(030)	60,000	60,000	0	0	0
Rockfall Hazard Rating System	( )	50,000	0	50,000	0	0
Lateral Work Zone Protection	(028)	160,000*		80,000	0	0
SUBTOTAL			198,200	360,000	40,000	10,000
PROPOSED NATIONAL STUDIES	SPR–2	TOTAL PROPOSED FUNDING				
Noncontact, Nondestructive Determination of Pavement Deflection Under a Moving Load	S–94–4	60,000	0	20,000	20,000	20,000
Long Term Field Monitoring of Mitigating Corrosion Inhibitors	S–95–7	30,000	0	6,000	6,000	18,000
Use of Lane Striping and Delineators to Control Vehicle Speeds in Work Zones	S–95–14	30,000	0	30,000	0	0
Roadside Safety Hardware Crash Tests to NCHRP Report 350	S–95–35	20,000	0	5,000	5,000	10,000
Support, Mainenance and Refinement of the National Transportation Control/ITS Communication Protocol (NICIP)	S–95–45	25,000	0	5,000	5,000	10,000
SUBTOTAL			0	66,000	36,000	58,000
TOTAL			198,200	426,000	76,000	68,000

* Coming from Contract Research Fund – NYS share $80,000

New York State Department of Transportation
Transportation Research and Development Bureau

FIGURE 1A: Organizational Structure

Total Positions: 48



	STRUCTURES	MATERIALS/PAVEMENTS	T^2/IMPLEMENTATION/SPECIAL SERVICES
ENGINEERING RESEARCH SPECIALIST II	1	1	1
ENGINEERING RESEARCH SPECIALIST I	3	3	4
ASSOC. STATISTICIAN			1
SENIOR STATISTICIAN			1
SENIOR COMPUTER PROGRAMMER/ANALYST			1
PROGRAM RESEARCH SPECIALIST II (TRANS.)			1
CIVIL ENGINEER I	4	5	6
JUNIOR ENGINEER	1		1
LAB EQUIPMENT DESIGN			1
ELECTRONIC EQUIPMENT MECHANIC			1
PRINCIPAL ENGINEERING TECHNICIAN			1
SENIOR ENGINEERING TECHNICIAN			2
TOTAL	9	9	21

TRANSPORTATION RESEARCH & DEVELOPMENT BUREAU

MISSION: To manage a targeted engineering research and development program to enhance the quality and cost-effectiveness of engineering policies, practices, procedures, standards, and specifications. Activities performed to accomplish this mission include applied research, technical assistance, technology transfer, and engineering consultation.

DIRECTOR'S OFFICE (518) 457-5826
Fax (518) 457-7535

Dr. Robert J. Perry, Director
Nancy A. Troxell, Secretary I

Robert A. Valenti, Civil Engineer III
Manages Local Technology Assistance Program Contract
Implements SHRP Research Products

STRUCTURES

Dr. Gongkang Fu
Engineering Research Specialist II

Conducts research to develop and verify new structural design techniques and to refine existing methods.

Provides technical consultation and assistance in the area of structures.

Performs load capacity evaluations of existing structures through physical testing and analysis.

Evaluates equipment and procedures for bridge inspection and evaluation.

Performs mathematical analysis of unique structural configurations.

Provides assistance for structural evaluation and monitoring.

Performs finite element analyses.

Dr. Sreenivas Alampalli, ERS I
Dr. Mohamed Elkordy, ERS I
Dr. Osman Hag-Elsafi, ERS I

Everett Dillon — David Elwell, MS
Jyotirmay Lall, MS — Dr. Ruijia Mu

MATERIALS/PAVEMENTS

Dr. Wei-Shih Yang
Engineering Research Specialist II

Conducts research to develop new or improved specifications for construction and maintenance materials.

Confirms or develops design, construction, and maintenance practices that promote effective, economical use of materials, and that result in more economical pavements, improved service, optimized performance, and extended service life.

Provides technical assistance in the subject areas of materials and pavements.

Coordinates FHWA/SHRP long-term pavement performance activities.

Performs analyses of pavements.

Dr. Luis Julian Bendaña, ERS I
Dr. M. Makbul Hossain, ERS I
Cheng Chou, MS, ERS I

Hong-Jer Chen, MS — Dan McAuliffe
Rick Morgan — Tom Van Bramer

TECHNOLOGY TRANSFER/IMPLEMENTATION/ SPECIAL SERVICES

Dr. Deniz Sandhu
Engineering Research Specialist II

Conducts engineering research to develop or improve specifications and practices in areas other than structures or materials/pavements.

Provides technical assistance and consultation in various engineering subject areas.

Provides Department-wide statistical consultation.

Coordinates distribution of federal technology transfer materials.

Administers implementation of research results within the Department.

Monitors University Transportation Research Consortium projects.

Administers FHWA pooled-fund studies.

Determines the Department's desire to participate in federal demonstration projects and coordinates their scheduling.

Coordinates the federal Experimental Features program.

Dr. Michael Mathioudakis, ERS I
Dr. Ossama Abd Elrahman, ERS I
Dr. Piotr Bajorski, Associate Statistician

Ed Bikowitz — Colin Campbell
Suman Dhar, MS — Faizal Enu, MS
David Petronis — Bob Pyskadlo

ADMINISTRATION/PUBLICATIONS

Mary J. Frederick
Administrative Assistant

Administers fiscal management of the Department's SPR-Part II Research Program

Coordinates annual research suggestion process.

Provides editorial support to Department personnel.

Manages Department's Research Library including various on-line services to assist Department staff in performing literature searches.

Publishes various Department documents, including Bureau publications such as research reports, Quarterly R&D Digest, TNT Newsletter, Annual Briefing Report, etc.

Provides Bureau's administrative and clerical support in Human Resource Management, budget preparation and monitoring of funds and special study analyses.

Dorothy Hogan, Librarian
Marie Goldston, Clerk 2
A. Donald Emerich, Engineering Editor
Linda Hotaling, Calculations Clerk 2

ELECTRONICS LAB

Designs, constructs, installs, calibrates, and repairs electrical instrumentation systems used in the collection of data for research projects.

Bill Roth

FIGURE 1B BUREAU ORGANIZATIONAL CHART

TABLE 4
ENGINEERING RESEARCH TECHNICAL ADVISORY PANEL (ERTAP)

CHAIRMAN Paul J. Mack, Director, Technical Services Division, Main Office, 7A-210, MC 0862
SECRETARY Robert J. Perry, Director, Transportation R&D Bureau, Main Office, 7A-600, MC 0869

VOTING MEMBERS

PANEL MEMBER	LOCATION	PANEL PHONE NUMBER	YEARS LEFT
D. E. Amsler, Sr.	Transportation Maintenance Division, 5-217 (MC 0337)	(518) 485-1495	2
L. N. Johanson	Bridge Design Bureau, 5-6th Floor (MC 0600)	(518) 457-2459	0
C. R. Fosdick	Systems & Program Planning Bureau, 4-111A (MC 0411)	(518) 457-7055	2
R. D. Albertin	Management Systems Bureau, 4-G-17 (MC 0445)	(518) 457-2520	0
R. A. Dennison, III	Design Services Bureau, 4-G1-B, (MC 0432)	(518) 457-1030	2
W. Pilipczuk	Resident Engineer, Oneida East, Region 2	(315) 793-2488	0
G. A. Funk	Traffic & Safety, Region 6	(607) 324-8512	1
E. J. Petrou	Regional Director, Region 10	(516) 952-6632	1

MAIN OFFICE LIAISON REPRESENTATIVES

PANEL MEMBER	LOCATION	PHONE NUMBER
M. P. Clarke	Transportation Maintenance Division, 5-217 (MC 0337)	(518) 485-1495
M. Smith	Equipment Management Division, 5-219 (MC 0319)	(518) 457-2875
A. E. Karoly	Traffic Engineering & Safety Division, 5-320, (MC 0464)	(518) 457-7438
D. M. Finkelstein	Liberty Boulevard, 7A-501, (MC 0820)	(518) 457-1724
D. A. Green	Eng. Resource & Automation Support, 4-214A, (MC 0421)	(518) 457-2400
E. C. Gillespie	Design Quality Assurance Bureau, 5-408, (MC 0750)	(518) 457-3696
J. Bishop	Construction Division, 4-101, (MC 0410)	(518) 457-3225
L. N. Johanson	Bridge Design Bureau, 5-6th Floor (MC 0600)	(518) 457-2459
S. R. Slavick	Policy & Program Bureau, 7A-302, (MC 0876)	(518) 457-5521
D. K. Richards	Materials Bureau, 7A-200, (MC 0861)	(518) 457-4285
Z. Kyfor	Geotechnical Engineering Bureau, 7-102, (MC 0863)	(518) 485-7039

REGIONAL LIAISON REPRESENTATIVES

PANEL MEMBER	LOCATION	PHONE NUMBER
P. Melas	Materials Engineer, Region 1	(518) 782-7291
J. Sprague, Jr.	Materials Engineer, Region 2	(315) 793-2680
M. Cregg	Soils Engineer, Region 3	(315) 469-3236
R. Ziemniak	Materials Engineer, Region 4	(716) 272-3355
M. E. Kraft	Assistant to Regional Director, Region 5	(716) 847-3238
P. E. McAnany	Construction Group, Region 6	(607) 324-8482
D. F. Cooke, Jr.	Materials Engineer, Region 7	(315) 785-7471
B. Rumpf	Construction Group, Region 8	(914) 575-6011
R. Salankiewicz	Planning Group, Region 9	(607) 773-7751
R. Reissig	Acting Supervisor, Technical Services, Region 10	(516) 952-6176
C. Stone	Technical Services, Region 11	(718) 482-4514

FHWA LIAISON REPRESENTATIVE

R. Dunn	Federal Highway Administration, Albany, NY Division	(518) 431-4129

SECTION I

Technical Assistance and Technology Transfer Program

PROJECT: **11-0 INFORMATION EXCHANGE**

SCOPE: As the title implies, this project covers activities providing for the transfer of technical information from one party to another. Other activities charged to this project include coordination of Experimental Feature Work Plans, support activities to the NCHRP Program, and coordination of pooled-fund projects. Examples of work performed under this project during the program period include:

1. Makbul Hossain attended the Northeastern States Materials Engineers 70th Annual (NESMEA) meeting October 11-13, 1994 in White Heaven, PA.

2. Sreenivas Alampalli reviewed a draft final report entitled "Peer Review Guidelines for Civil Engineering Projects" for the ASCE Standards Committee.

3. Sreenivas Alampalli attended the Squad Boss Forum held by the Structures Division, October 1994.

4. Piotr Bajorski visited the Cornell University Statistics Center on October 5 & 6, 1994. During his visit he made a presentation, entitled "On Ratio Estimates and Evaluation of Sampling Plans," to faculty and students. This problem was encountered while developing sampling plans for the Data Services Bureau, in estimation of local highway receipts.

5. The inaugural issue of the Intelligent Transportation Systems (ITS) Newsletter (ITS NEWS) was published in Winter 1995. It is an occasional newsletter which focuses on developments in "smart" transportation systems in New York State. Its goal is to report on programs that enhance mobility, reduce congestion, and increase safety through innovative use of new technologies. The newsletter will describe planned, in-progress, and completed ITS research, operational tests, and deployment studies. The Fall 1995 issue is currently being prepared.

6. Sreenivas Alampalli reviewed a section of the Nondestructive Testing Handbook entitled "Introduction to Special Nondestructive Testing Methods" to be published by the American Society for Nondestructive Testing (ASNT).

7. On November 10, 1994, Robert Valenti attended the LTAP annual highway school's planning committee meeting in Syracuse, NY. Potential topics for the June, 1995 school were identified and discussed.

8. Osman Hag-Elsafi attended the Statewide Conference on Local Bridges, sponsored by the Department and held November 16 and 17, 1994 in Syracuse, NY.

9. Julian Bendaña commented on the "Metric Conversion Planned for Vehicle Size and Weight" Federal Register 51060, FHWA DOCKET 94-20.10.

10. Julian Bendaña and Makbul Hossain went to New York City to observe Urban Nondestructive Testing using Ground Penetrating Radar (GPR), Falling Weight Deflectometer (FWD), and Seismic Pavement Analyzer techniques. This testing was performed as part of a UTRC research project titled "Comparative Evaluation of Deflection and Wave Propagation Nondestructive Testing Methods for Pavements" jointly conducted by CUNY, Cornell University and Rutgers University.

11. Gongkang Fu and Mohamed Elkordy attended two separate squad boss meetings of the Structures Division.

12. Wes Yang attended NCHRP Project 1-33 "Methodology to Improve Pavement Investment Decisions" and Project 10-44 "Characterization of Insitu Material Properties of Pavement Structures" panel meetings in Washington, D.C. Five proposals for each project were reviewed and scored. A research agency for each project was selected.

13. On December 5, 1994, Robert Valenti attended the Planning Committee meeting for the Statewide Conference on Local Bridges. Members discussed the results of the first conference and began planning the November 1996 conference.

14. Wes Yang, Dan McAuliffe, and Gongkang Fu attended the 74th Annual TRB meeting in Washington, D.C. January 21-25, 1995. Gongkang attended TRB committees A2C05, A2C52, and A2C06. He also organized a session at the A2C05 meeting about on-going projects on dynamics and field testing of highway bridges. Deniz Sandhu also attended the TRB meeting and presented the paper entitled, "Effectiveness of Experimental Stop/Slow Signal Flags in Work Zones."

15. Robert Valenti and Deniz Sandhu attended Engineers Week presentations on February 23, 1995. They presented the paper entitled, "Effectiveness of Experimental Stop/Slow Signal Flags in Work Zones."

16. Sam Elrahman completed a book review for Keep a City Moving: Urban Transportation Management in Hong Kong. The review will appear in the forthcoming issue of Journal of Developing Areas, published by Illinois University.

17. Julian Bendaña attended the Regional Materials Engineers' meeting in the Main Office. The purpose was to discuss performance of various rehabilitation alternatives from the Pavement Rehabilitation Manual, Volume II.

18. Dan McAuliffe, Julian Bendaña and Rick Morgan gave permission to Better Roads magazine to print an edited version of their TRB paper titled "Overlays on Faulted Rigid Pavements."

19. Sreenivas Alampalli attended the XIII International Modal Analysis Conference in Nashville, TN on February 15-16, 1995. He also chaired a session entitled "Modal Updating and Correlation III" on February 16, 1995.

20. On February 17, 1995 Sam Elrahman met with Fred Brodzinski and Robert Paaswell of UTRC to discuss a wide range of issues related to the UTRC program.

21. Wes Yang reviewed and approved DOT's response to comments and suggested modifications on the NCHRP Project, 10-44 "Nondestructive Testing to Determine Insitu Material Properties of Pavement Layers" panel.

22. Wes Yang reviewed a working paper on "An Exploratory Application of Bayesian Regression" for FHWA.

23. Sreenivas Alampalli reviewed a book proposal entitled "Neurocomputing for Design Automation" for John Wiley Publications.

24. Gongkang Fu reviewed a paper entitled "Dynamic Assessment of Load-Carrying Capacity of Bridge Decks" for the ASCE Journal of Structural Engineering.

25. Julian Bendaña, Makbul Hossain, Tom Van Bramer and Dan McAuliffe attended the 34th Annual Asphalt Paving Conference at RPI on March 15, 1995.

26. Sam Elrahman participated in a conference on "International Transportation Information Resources" sponsored by FHWA, March 20 through 22, 1995, in Washington D.C. He also took part in a workshop which explored issues involved in foreign document acquisition and translation. He will serve as a member of a committee whose goal is to study and recommend an effective mechanism for foreign document acquisition.

27. Sam Elrahman assisted in compiling the responses to an AASHTO Research Advisory Committee questionnaire on projected research needs and directions of the State and Federal Research programs. The results of this survey will be used in updating the document entitled "Innovation: A Strategy for Research, Development, and Technology Transfer."

28. Deniz Sandhu compiled the responses to and completed a survey for NCHRP Project 20-33 "Facilitating and Implementation of Research Findings."

29. Gongkang Fu, Osman-Hag Elsafi, and Sreenivas Alampalli attended the ASCE Structures Congress in Boston, MA April 3-5, 1995. Gongkang Fu presented a paper entitled "Field Test of a Steel Bridge for Improved Rating", co-authored by Frank Pezze and Sreenivas Alampalli. He also chaired 2 sessions entitled "Probabilistic Methods for Infrastructure Materials" and "Innovations in Materials for Infrastructure." Sreenivas Alampalli attended meetings of the ASCE task committee on "Structural Identification of Constructed Facilities," and the technical committee on "Monitoring and Evaluating Structural Performance." Osman Hag-Elsafi presented a paper entitled "A Unified Approach for Derivation of Numerical Integration Methods." He also attended a session entitled "Emerging Recycled Plastic Technology" which included presentations on material availability, applications, and standards.

30. Wes Yang attended the Annual AASHTO Joint Task Force on Pavements meeting in Sacramento, CA May 22-26, 1995.

31. On May 1, 1995, Faizal Enu attended Intelligent Transportation Society of New York (ITS-NY), technical presentations. The topics included the "HELP" Program, Traffic Flow Visualization & Control, High-Speed Rail Remote Video Project.

32. May 4-5, 1995 Sam Elrahman attended the Regional Public Transportation Conference at Rutgers University, sponsored by UTRC.

33. In response to a request from Raymond DeRocco, Permit Unit of the Commercial Vehicle Safety Bureau, Julian Bendaña calculated truck damage factors for ten single units. These damage factors were used on a presentation DeRocco made to the Legislature on May 30, 1995 to counteract truckers desire to increase single truck maximum GVWs and axle loads.

34. Gongkang Fu attended the ASCE 10th Engineering Mechanics Conference held at Boulder, Colorado. He presented a paper entitled "Modal Analysis for Cantilever Beam Response to Nonstationary Colored Random Excitation," co-authored by Jyotirmay Lall.

35. Robert Valenti has been selected to serve as a panel member for the Transportation Association of Canada (TAC) research project "Research Program Evaluation - Synthesis of Practice." To date, he has participated in two conference calls with other members of the panel to select a consultant for the project.

36. Sreenivas Alampalli was invited by FHWA to participate in a workshop on Instrumentation and Vibration Analysis of Highway Bridges for Condition Assessment and Damage Detection held at the University of Cincinnati July 18-20, 1995. This workshop was sponsored by FHWA, NSF, and the University of Cincinnati. Around 70 people from several DOTs, universities, and FHWA attended the workshop. Sreenivas Alampalli gave a presentation on the recently completed project, which evaluated the sensitivity of modal parameters to damage detection in highway bridges.

37. Sreenivas Alampalli was invited, all expenses paid, to attend the Multiprotection Design Summer Institute on Earthquake Protection Design at the National Emergency Training Center, Emmitsburg, MD, July 23-28, 1995. This was sponsored by the Federal Emergency Management Agency (FEMA).

38. Gongkang Fu and Jyotirmay Lall prepared a paper entitled "Nonstationary Seismic Response of Highway Bridges Supported on Columns" for the 3rd International Symposium on Uncertainty Modeling and Analysis, September 17-20, 1995, in College Park, MD.

39. Wes Yang was selected by NCHRP to serve on NCHRP Project Panel D 10-48 "Study of Distress Data and Pavement Deflection Data to Determine Pavement Layer Characteristics."

40. Julian Bendaña was nominated by Robert J. Reilly, Director of the Cooperative Research Programs to serve on Panel C 1-36 "Determination of Pavement Damage from Super-Single and Singled-Out Dual Tires."

41. Dewey Amsler, Ron Sines, and Bob Valenti contributed to an article on implementation of SHRP products in New York and Pennsylvania, written by Harrington-Hughes Associates, which will appear in a future FHWA *Focus Newsletter*.

42. Suman Dhar distributed the "Guidelines for Field Evaluations of Pothole Repairs", prepared by HITEC, to Departmental clients and to the Cornell Local Roads Program.

STATUS: Continuing

ESTIMATED 1995-96 COSTS: $280,000

CLIENT: All Department Units

08/21/1995 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 6/F19 PROJECT STATUS REPORT
IAS RUN DATE IS 06/29/1995 FHWA SEMI-ANNUAL

PROJECT: R01100881 TITLE : INFORMATION EXCHANGE
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT : VARIOUS
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 280000

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	220483	220483	280000	280000	204615	204615
TOTAL COSTS	220483	220483	280000	280000	204615	204615

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: **11–01 ENGINEERING SOILS SURVEY**

SCOPE: This project, in conjunction with the Soil Conservation Service (SCS), provides field sampling assistance, laboratory analysis, and engineering interpretation of the soil types encountered in a surveyed county. Field sampling of soils will be conducted in the counties where SCS is surveying. The laboratory analysis and interpretations for these soils is scheduled. Next year the field survey has been cancelled by SCS. However, funds will be needed to complete some existing laboratory work and investigate the SCS computerization of the data.

STATUS: Continuing

ESTIMATED 1995–96 COSTS: $9,000

CLIENTS: All Department Units

08/21/1995 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 6/F19 PROJECT STATUS REPORT
IAS RUN DATE IS 06/29/1995 FHWA SEMI-ANNUAL

PROJECT: R01101881 TITLE : ENGINEERING SOILS SURVEY
SECTION: ADMINISTRATION INVESTIGATOR: REAGAN
CLIENT : SOILS
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 9000

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	1693	1693	9000	9000	6577	6577
TOTAL COSTS	1693	1693	9000	9000	6577	6577

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: 11-02 INFORMATION EXCHANGE — LIBRARY OPERATIONS

SCOPE: This project covers activities performed by the Bureau's library staff which include accessing current technical information through the maintenance of a collection of technical literature and conducting inquiries to various technical information services, State universities and State libraries to obtain research source material. The following is a summary of some activities performed under this project during SFY 1995–96:

• Reference Questions	1,076
• Inter-Library Loans	614
• New Acquisitions	826
• Literature Searches	276
• Circulation	1,702

STATUS: Continuing

ESTIMATED 1995-96 COSTS: $95,000

CLIENT: All Department Units

08/21/1995 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
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IAS RUN DATE IS 06/29/1995 FHWA SEMI-ANNUAL

PROJECT: R01102881 TITLE : INFO EX-LIBRARY OPERATIONS
SECTION: ADMINISTRATION INVESTIGATOR: ADMINISTRATION
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 95000

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	56048	56048	95000	95000	69423	69423
TOTAL COSTS	56048	56048	95000	95000	69423	69423

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: 11-03 INFORMATION EXCHANGE — NEWSLETTERS

SCOPE: The Quarterly R&D Digest published since 1977 changed to Transportation R&D News with its 61st issue in January 1995, reflecting this Bureau's own new name. It continues to serve as a forum for announcement of new publications and new research studies, with occasional feature articles concerning the research program, and is distributed throughout NYSDOT, to FHWA, and to other states. This year, a new order form was designed for insertion in each issue, simplifying the ordering of new publications by interested readers. Four issues were published during this program period.

In addition, the TNT technology transfer newsletter continued quarterly publication and distribution to all NYSDOT employees who have engineering titles. Its contents cover a broad range of technological innovation throughout the transportation world, with the intent of encouraging readers to seek further information and possible application within New York.

Finally, a new third newsletter ITS NEWS: Intelligent Transportation Systems for New York began publication with a six-page issue in Winter 1995. Planned as a semi-annual, it covers the introduction of "smart" transportation systems featuring information processing, communications electronics, and computer controls to improve safety, enhance mobility, minimize environmental impacts, and promote economic productivity.

It should be noted that in this program period, the Bureau increased its schedule to production of ten newsletters annually.

STATUS: Continuing

ESTIMATED 1995-96 COSTS: $30,000

CLIENT: All Department Units

08/21/1995 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 6/F19 PROJECT STATUS REPORT
IAS RUN DATE IS 06/29/1995 FHWA SEMI-ANNUAL

PROJECT: R01103881 TITLE : INFO EX - DIGEST AND TNT
SECTION: ADMINISTRATION INVESTIGATOR: ADMINISTRATION
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 30000

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	19566	19566	30000	30000	21923	21923
TOTAL COSTS	19566	19566	30000	30000	21923	21923

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: 11-04 INFORMATION EXCHANGE — LIBRARY SUPPORT

SCOPE: This project covers the acquisition of research resource material such as books, reports, periodicals, conference proceedings, etc. for the library.

STATUS: Continuing

ESTIMATED 1995-96 COSTS: $23,000

CLIENT: All Department Units

08/21/1995 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
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IAS RUN DATE IS 06/29/1995 FHWA SEMI-ANNUAL

PROJECT: R01104881 TITLE : INFO EX - LIBRARY SUPPORT
SECTION: ADMINISTRATION INVESTIGATOR: ADMINISTRATION
CLIENT :
CONTRACTOR :

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 23000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	17865	17865	23000	23000	16808	16808
TOTAL COSTS	17865	17865	23000	23000	16808	16808

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: 12–0 CONSULTATION

SCOPE: This project provides a means of rendering advice and/or services in various areas of engineering technology and research methodology, such as design of experiments, instrumentation, and statistical analysis, for which the Bureau staff is uniquely qualified or equipped. Some activities conducted under this project during the program period included:

1. Osman Hag-Elsafi attended testing of a prestressed T-beam conducted by Dr. John Wallace at Clarkson University. The tested beam was removed from a dismantled bridge on Route 22 over Interstate 87 in Keeseville, NY in Region 7.

2. Cheng Chou attended a laboratory demonstration of Automated Thermal Spray Systems at SUNY Stony Brook as part of the project, titled "Evaluation of Bridge Painting Systems."

3. Suman Dhar completed a study on the effectiveness of the new sign color "Strong Yellow-Green" (SYG) signs for client Traffic Engineering & Safety. The study was conducted as part of FHWA's nationwide study to evaluate the SYG sign color. Results from this study provided encouraging evidence of the benefits of using the SYSG signs over the standard signs, although the short duration of this study does not allow strong recommendations. It is anticipated that when FHWA combines results of this study with those in other jurisdictions, more definitive conclusions could be drawn. This study was published in Special Report 121 and was distributed to FHWA.

4. Special Report #116, Night-Time Construction Operations was published. This report discusses the parameters involved in night-time operations, provided guidance in establishing standard procedures for such operations, and offered planning recommendations to be followed before and during night work to ensure safe, efficient conditions. This report is intend to complement the Construction Division's Night Construction Policy and Operational Guidelines of August, 1994.

5. Julian Bendaña responded to a request from Wilfredo Castro, Research and Pavement Management Chief of the Puerto Rico Highway and Transportation Authority, on a research report titled "Development and Calibration of New Design Tools for Rigid Pavements." This project is jointly sponsored by the Puerto Rico Highway and Transportation Authority, and the Department of Civil Engineering, University of Puerto Rico.

6. Mohamed Elkordy obtained a video on motorcoach inspection using aluminum ramps and contacted the U.S. and Pennsylvania Departments of Transportation to inquire about their experience with these ramps. The Superior Equipment Company of Anaheim, California manufactures these ramps. Pennsylvania DOT indicated their satisfaction with the portable ramp specifications provided by the company. Based on this and other findings, these portable ramps were recommended to the client, Commercial Vehicle Safety Bureau.

7. Cheng Chou participated in a field demonstration of an Automated Thermal Spray System on Long Island, NY as part of the consultation project, "Evaluation of Bridge Painting Systems."

8. William Roth and Orin Mann assisted AMTRAK personnel in testing overhead railroad crossing video cameras in several locations in Albany and Rensselaer County. They also successfully resolved problems with the vendor's transmitter.

9. David Elwell and Gongkang Fu completed a report summarizing the cylinder and cube tests for concrete compression strength.

10. Sreenivas Alampalli and Everett Dillon installed required sensors for monitoring loads on traffic signal support systems. This examines the validity of AASHTO's estimation method for wind load on these systems.

11. Ruijia Mu and Jyotirmay Lall modeled the Suffern bridge in STADD-III. Dead loads, live loads, and thermal effects were included. This is to investigate uplift of the bridge.

12. At the request of Laurie Hibbard (Region 1), Michael Mathioudakis conducted a survey of 14 transportation agencies regarding the performance of the "cone wheel machine." The responses were very positive. The results of the survey were summarized in a memo to the client, who is interested in purchasing a unit. Videotapes that demonstrate the use of the unit by Virginia and Minnesota DOT were also forwarded to Region 1.

13. On March 24, 1995 Osman Hag-Elsafi and David Elwell met with Melanie Hiris and Gary Glath of the Landscape Architecture Bureau to discuss various alternatives for architectural design of traffic noise barriers using recycled plastic lumber and supported by steel supporting systems. A follow-up meeting is tentatively scheduled for April 7, 1995.

14. Sensors and hardware necessary for instrumentation of monitoring of loads on traffic signal support structures were received. Traffic and Safety bought part of the

instrumentation necessary for the project. Sreenivas Alampalli and Everett Dillon worked on the instrumentation, and completed necessary wiring and programming. The first traffic pole will be instrumented in May 1995 as soon as Region 1 Traffic & Safety provides necessary traffic protection and installation help.

15. Everett Dillon and Sreenivas Alampalli helped the Geotechnical Engineering Bureau estimate the Poisson's ratio of rock cores. The rock cores were instrumented with strain gages, and Poisson's ratio and Elastic Modulus were estimated while testing them in the Universal testing machine in the Materials Bureau.

16. Sreenivas Alampalli, Everett Dillon, and Gongkang Fu discussed the scope of the project and possible instrumentation plan for testing the Williamsburg Bridge Orthotropic deck. Sreeni will talk to Raymond Stieve of the Structures Division to finalize the details and decide the necessity of the project.

17. A memo was sent to Larry Brown of DQAB, to confirm the scope of the project Life-Cycle Cost Analysis of Granite Curbing. Faizal Enu reviewed the Standard Specifications and Standard Sheets and met with Tom Ebert of Engineering Geology to obtain reference materials for the properties of granite.

18. Sreenivas Alampalli and Everett Dillon collected data from the traffic pole on the Route 87 ramp. The temperature data collected was processed and transmitted to the Traffic & Safety Division.

STATUS: Continuing

ESTIMATED 1995-96 COSTS: $500,000

CLIENT: All Department Units

08/21/1995 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 6/F19 PROJECT STATUS REPORT
IAS RUN DATE IS 06/29/1995 FHWA SEMI-ANNUAL

PROJECT: R01200881 TITLE : CONSULTATION
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT : VARIOUS
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 471000

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	318271	318271	500000	500000	365385	365385
TOTAL COSTS	318271	318271	500000	500000	365385	365385

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IAS RUN DATE IS 06/29/1995

NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
PROJECT STATUS REPORT
FHWA SEMI-ANNUAL

PROJECT: R01222881 TITLE : FHWA-LTPP
SECTION: MATER./PAVING INVESTIGATOR: DR. YANG
CLIENT : N/A
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 200000

PROJECT INITIATION DATE : 07/07/1988
STUDY PROPOSAL DUE : 01/03/1989
STUDY PROPOSAL COMPLETED: 07/12/1988
STUDY PROPOSAL APPROVED : 07/12/1988
ORIGINAL COMPLETION DATE: 03/31/1993
REVISED COMPLETION DATE : 09/30/1998
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	14779	107925	40520	440520	29611	327051
TOTAL COSTS	14779	107925	40520	440520	29611	327051

OBJECTIVE: To provide the staffing, expertise, and all necessary technical assistance for FHWA-LTPP related activities (e.g., GPS/SPS, Seasonal Monitoring Program and WIM, etc.) in New York State.

PROGRESS: First round of data collection for the Seasonal Monitoring Program on the GPS site on Route I88 in Otsego County was completed. The SPS-8 site on the Lake Ontario Street Parkway was instrumented to be part of the Seasonal Monitoring Program. All sites were all marked and stripped.

SIX-MONTH PLAN: Continue to coordinate activities between the Department and FHWA's contractor. Assure all signs, numbers, and markings are in place at GPS sites. Transmit inventory data on all GPS sections to FHWA'S contractor as it becomes available.

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IAS RUN DATE IS 06/29/1995 FHWA SEMI-ANNUAL

PROJECT: R01228881 TITLE : ERTAP CONSULTATION
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT :
CONTRACTOR :

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 15000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	13396	13396	15000	15000	10962	10962
TOTAL COSTS	13396	13396	15000	15000	10962	10962

PROJECT: **12-38 CONSULTATION (STATISTICS)**

SCOPE: This project covers statistical services provided by the Bureau's statistician to various clients throughout the Department. Some of the analyses provided during the program period include:

1. Deniz Sandhu consulted with Russell Thielke of the Materials Bureau on a pilot sampling plan for determining percent ash filler in epoxy. The results will be used to assess the variability of this factor within a batch and determine if a rigorous quality assurance mechanism is needed to control it.

2. Deniz Sandhu and Piotr Bajorski met with Rodney Delisle of the Geotechnical Engineering Bureau to discuss some issues related to the selection of the number of test sections to assess the long term performance of different pavement design methods and rehabilitation treatments.

3. Piotr Bajorski developed a data collection form, for actual and forecasted weather conditions, to be used in the evaluation of the WELS weather prediction system. The form has been sent to the other states participating in the study (New Jersey, Oregon, and Minnesota) for their comments. Data collection forms for the participating residencies in New York State are also under preparation.

4. Piotr Bajorski consulted with Data Services Bureau in preparing a plan for sampling from 1608 Minor Civil Divisions (i.e. towns, cities, villages). The sample was drawn and used to estimate the entries for FHWA-536 form for the 1993 local highway receipts and disbursements. The precision of the estimates were very good, with a maximum error level of 4 percent for the most important entries.

5. During December 1994, Piotr Bajorski, Deniz Sandhu, and Jim Noonan met with Transportation Maintenance personnel several times regarding various aspects of the evaluation of WELS Weather Prediction System. As a result of these meetings, the following was accomplished:

   A comprehensive document, detailing how information regarding actual and forecasted storm events should be interpreted and documented was prepared. This document was faxed to participating New Jersey, Oregon, and Minnesota State DOTs, FHWA, and WELS representatives on December 7, 1994, for their comments.

   The budget and scope of services for the statistical analysis of data for this evaluation was prepared and incorporated into the scope and budget of FHWA's test and evaluation project #28.

A data collection form to be used by participating New York State residencies regarding actual and forecasted storm events, corresponding instructions to fill out the forms, and examples of filled-out forms (based on actual events and forecasts) were prepared and distributed.

The instructions for preparing the master spread sheets, to be prepared by participating states, was distributed to them in November for their comments. These instructions are being modified and finalized addressing their suggestions.

6. On December 22, 1994, Piotr Bajorski and Colin Campbell attended a meeting at the Rensselaer Transportation Maintenance Residency. They met with Transportation Maintenance and Equipment Management personnel from the Central Office, Region 1 Main Office, the Rensselaer Residency, and researchers from the RPI Lighting Research Center to discuss evaluation of experimental forward lighting options for snowplows. TR&DB also presented their recommendations from the pilot study conducted in the Elizabethtown Residency during the 1993/94 Winter. A preliminary draft report summarizing this pilot study and its recommendations has been prepared and forwarded to the client for comments.

7. Piotr Bajorski prepared an experimental design for concrete mixture proportions to be used in the "Durable Concrete Mixes" experiment. The consultation was undertaken by Don Streeter of the Materials Bureau, with the objective of minimizing the permeability of concrete mixes while meeting constraints on strength and other properties.

8. Piotr Bajorski provided an experimental plan for the Materials Bureau to assess the repeatability of the equipment used for SHRP Superpave implementation.

9. Deniz Sandhu and Jim Noonan met with Transportation Maintenance Division personnel in setting up field experiments on "Evaluation of Experimental Forward Lighting Options on a Snow and Ice Truck" during the winter of 1994-95. Meetings were held in the Fultonville and Elizabethtown residencies to finalize this year's experimental set-up.

10. On January 3-5, 1995, Michael Mathioudakis attended a course entitled, "Static and Seismic Slope for Waste Containment Facilities", offered by the University of Wisconsin-Madison, in Saratoga Springs, New York.

11. On March 2 and 6, 1995, Piotr Bajorski met with representatives from the Geotechnical Engineering Bureau to discuss methodology for assessing the Human Exposure

Factor used in the calculation of the relative risk of rockfall accidents. He provided his suggestions for more accurate estimation of the Human Exposure Factor.

12. Piotr Bajorski completed the statistical analysis of the data from the second phase of the study comparing soil consolidation test results for manufactured soil samples using LoadTrac and TACT devices. The analysis revealed statistically significant differences between the two devices. Makbul Mathioudakis will be working with the Geotechnical Engineering Bureau in interpreting the practical implications of the observed differences.

13. Deniz Sandhu worked with staff from the Materials Bureau and the Structures Division addressing the questions regarding the sampling plan for epoxy coated rebars. The project will be undertaken as a regional pooled-fund study in partnership with the Pennsylvania DOT. The sampling plan which was prepared two years ago is being revised to reflect current conditions and the change in the scope of the study. On March 23, 1995, D. Sandhu (with F. Szczepanek and G. Perregaux of the Materials Bureau and W. Winkler of the Structures Division) met with representatives from PennDOT in Binghamton, New York, to discuss the sampling plan and the scope of services for this project.

14. On April 20, 1995, Deniz Sandhu met with representatives from the Traffic Engineering & Safety Division and State Police to discuss a field testing program to determine the braking capacity of pickup truck/spreader combinations. She designed a form to collect information on the characteristics of trucks which tow fertilizer spreaders on the State highway system. The survey will be conducted by the State Police during the remainder of spring, 1995. The information obtained will be used to set the test parameters for any future field testing.

15. On April 25, 1995, Deniz Sandhu met with Joe Stuhlman of the Internal Audit Group to discuss development of a sampling plan to determine compliance with various aspects of the Department's Quick Pay Method. A pilot sampling plan was developed and implemented. This data will be analyzed prior to determining the final sampling plan for the study.

16. Deniz Sandhu analyzed the data proved by Joe Stuhlman of the Internal Audit Group, to establish sampling requirements for a study to determine compliance with various aspects of the Department's Quick Pay Method. The final sampling plan for the study was provided to the client on May 2, 1995.

17. Piotr Bajorski met with Ron Fredericks of the Design Services Bureau to discuss the methods used in the evaluation of the precision of three-dimensional maps. The client is interested in determining the number of points needed to be analyzed for a given precision level. This consultation will be continued later in the year.

18. Deniz Sandhu met several times with J. Perregaux of the Materials Bureau regarding the pooled-funds study with Pennsylvania on "Field Performance of Epoxy Coated Rebars." She worked with Transportation Maintenance Division and the Bridge Inspection Unit in obtaining the information needed to do the sampling of the spans which will be included in the study. Colin Campbell finalized the scope of services for the project and this was forwarded to Pennsylvania DOT for inclusion in the RFP.

19. Piotr Bajorski met with Dewey Amsler and Joe Doherty of the Transportation Maintenance Division to discuss the progress of the WELS evaluation project. He is working with S. Maloney of the Maintenance Division on preparation of data sets for the statistical analysis.

STATUS: Continuing

ESTIMATED 1995-96 COSTS: $82,500

CLIENT: All Department Units

08/21/1995 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
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IAS RUN DATE IS 06/29/1995 FHWA SEMI-ANNUAL

PROJECT: R01238881 TITLE : CONSULTATION (STATISTICS)
SECTION: TECH/TRAN INVESTIGATOR: DR. SANDHU
CLIENT : ALL SECTIONS
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 77000

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	64212	64212	77000	77000	56269	56269
TOTAL COSTS	64212	64212	77000	77000	56269	56269

08/21/1995
THRU PAY PERIOD S 6/F19
IAS RUN DATE IS 06/29/1995

NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
PROJECT STATUS REPORT
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PROJECT:	R01240881	TITLE :	REEVALUATION OF CULVERT DESIGN PROC	PROJECT INITIATION DATE :	03/26/1993
SECTION:	TECH/TRAN	INVESTIGATOR:	DR. MATHIOUDAKIS	STUDY PROPOSAL DUE :	09/22/1993
		CLIENT :	STRUC, DESIGN, MATLS, SOILS	STUDY PROPOSAL COMPLETED:	10/01/1993
		CONTRACTOR :		STUDY PROPOSAL APPROVED :	10/01/1993
				ORIGINAL COMPLETION DATE:	09/30/1994
	APPROVED STUDY PROPOSAL AMOUNT :	1		REVISED COMPLETION DATE :	10/31/1995
	ACTUAL STUDY PROPOSAL AMOUNT :	0		REVISION NUMBER :	2
	APPROVED ORIGINAL BUDGET AMOUNT:	30000			

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	5013	56641	13150	49950	9610	46410
TOTAL COSTS	5013	56641	13150	49950	9610	46410

OBJECTIVE: To re-evaluate the Department's current design philosophy and assess our ability to predicting the remaining life of existing culverts.

PROGRESS: The final draft report has been completed; and is under review.

SIX-MONTH PLAN: Finalize the report, publish and distribute the report.

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PROJECT: R01244881 TITLE : SPECS TRAFFIC NOISE BARRIERS
SECTION: STRUCTURES INVESTIGATOR: DR. HAG-ELSAFI
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 45000

PROJECT INITIATION DATE : 08/19/1994
STUDY PROPOSAL DUE : 02/15/1995
STUDY PROPOSAL COMPLETED: 08/19/1994
STUDY PROPOSAL APPROVED : 08/19/1994
ORIGINAL COMPLETION DATE: 12/31/1995
REVISED COMPLETION DATE : 03/30/1996
REVISION NUMBER : 1

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	18050	18050	25000	45000	18269	18269
TOTAL COSTS	18050	18050	25000	45000	18269	18269

OBJECTIVE: To develop specifications and design guidelines for traffic noise barriers using recycled plastic. The standards should provide acoustically effective, structurally sound, aesthetically pleasing, and cost effective alternatives on the basis of color, texture, and shape for community consideration.

PROGRESS: The project was initiated.

SIX-MONTH PLAN: Survey literature; contact various recycled plastic manufacturers and organizations to gather information about properties, costs, etc.; investigate the feasibility of using recycled plastic for noise barrriers; consult with clients; begin work on the details.

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PROJECT: R01248881 TITLE : SHRP SUPERPAVE
SECTION: MATER./PAVING INVESTIGATOR: DR. HOSSAIN
CLIENT : MATERIALS BUREAU
CONTRACTOR :

PROJECT INITIATION DATE : 07/18/1994
STUDY PROPOSAL DUE : 01/14/1995
STUDY PROPOSAL COMPLETED: 07/18/1994
STUDY PROPOSAL APPROVED : 07/18/1994
ORIGINAL COMPLETION DATE: 09/30/1999
REVISED COMPLETION DATE : 09/30/1999
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 250000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	7491	7691	50000	250000	36538	36538
TOTAL COSTS	7491	7691	50000	250000	36538	36538

OBJECTIVE: To provide the staffing, the expertise and the necessary technical assistance to coordinate such Superpave-related activities as Operational Goal #94-5, testing and mix design plans, and QA/QC Program, etc.

PROGRESS: Attended Superpave Operational Goal Meeting; completed an evaluation of SHRP temperature equation, and notified appropriate Deparment personnel through a memorandum.

SIX-MONTH PLAN: Continue providing technical assistance to Superpave projects.

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PROJECT: R01249881 TITLE : FALLING WEIGHT DEFLECTOMETER
SECTION: MATER./PAVING INVESTIGATOR: DR. YANG/DR. HOSSAIN
CLIENT : SOIL MECHANICS BUREAU
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 150000

PROJECT INITIATION DATE : 09/30/1994
STUDY PROPOSAL DUE : 03/29/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1997
REVISED COMPLETION DATE : 09/30/1997
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	40961	40961	50000	150000	36538	36538
TOTAL COSTS	40961	40961	50000	150000	36538	36538

OBJECTIVE: To provide the staffing, expertise, and all necessary technical assistance to coordinate the following FWD-related activities:

1. Demonstrate the use of FWD using selected pavement sites.
2. Develop a procedure for collection, analysis, and interpretation of FWD data.

PROGRESS: 1994 FWD data analysis was completed. Half of the 1995 FWD tests were completed and analysis of the data started.

SIX-MONTH PLAN: Complete 1995 FWD tests. Preparation of operation guidelines will begin. laboratory test data and data interpretation. Collect SHRP LTPP data concerning resilient modulus of different soil types.

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NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
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PROJECT: R01252881 TITLE : GEOSYNTHETIC SLOPES & RETAIN WALLS
SECTION: TECH/TRAN INVESTIGATOR: DR. MATHIOUDAKIS
CLIENT : GEOTECHNICAL ENGINEERING BUREAU
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 45000

PROJECT INITIATION DATE : 11/22/1994
STUDY PROPOSAL DUE : 05/21/1995
STUDY PROPOSAL COMPLETED: 11/22/1994
STUDY PROPOSAL APPROVED : 11/22/1994
ORIGINAL COMPLETION DATE: 03/31/1996
REVISED COMPLETION DATE : 03/31/1996
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	5236	5236	20000	45000	14615	14615
TOTAL COSTS	5236	5236	20000	45000	14615	14615

OBJECTIVE: To develop guidelines for design and acceptance of geosynthetics installed in slopes and retaining walls.

PROGRESS: NCHRP reports and FHWA design guidelines have been reviewed.

SIX-MONTH PLAN: Begin conducting a comprehensive literature review; identifying, reviewing, and evaluating available design procedures and standards of other agencies; outlining general design principles.

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PROJECT: R01254881 TITLE : FIELD MON ROADS TRAF SIGNAL POLES
SECTION: STRUCTURES INVESTIGATOR: DR. ALAMPALLI
CLIENT : FACILITIES DESIGN, STRUCTURES,T&S
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 50000

PROJECT INITIATION DATE : 12/09/1994
STUDY PROPOSAL DUE : 06/07/1995
STUDY PROPOSAL COMPLETED: 12/09/1994
STUDY PROPOSAL APPROVED : 12/09/1994
ORIGINAL COMPLETION DATE: 03/31/1996
REVISED COMPLETION DATE : 03/31/1996
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	11231	11231	11000	36000	8038	8038
TOTAL COSTS	11231	11231	25000	50000	18269	18269

OBJECTIVE: To examine the validity of the AASHTO method of calculating loads on signal poles, by field testing.

PROGRESS: Project initiated December 1994

SIX-MONTH PLAN: Prepare instrumentation for two signal poles in NY State with load cells and wind speed monitors, to obtain load transferred to the pole from the span-wire and associated wind velocities.

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PROJECT: R01255881 TITLE : HICOST DISPOSAL PTS CLEAN'G SOLVNTS
SECTION: MATER./PAVING INVESTIGATOR: CHOU
CLIENT : EQUIPMENT MANAGEMENT DIVISION
CONTRACTOR :

PROJECT INITIATION DATE : 04/13/1995
STUDY PROPOSAL DUE : 10/10/1995
STUDY PROPOSAL COMPLETED: 04/13/1995
STUDY PROPOSAL APPROVED : 04/13/1995
ORIGINAL COMPLETION DATE: 03/31/1996
REVISED COMPLETION DATE : 03/31/1996
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 20000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	No Ias Costs on File		20000	38000	14615	14615
TOTAL COSTS	No Ias Costs on File		2000	20000	1462	1462

OBJECTIVE: To develop a strategy for reducing the high cost of disposal of parts cleaning solvent such as finding other, less expensive means of disposal; alternative, less-expensive solvens without reducing cleaning efficiency; and biodegradable solvents that will allow flushing into local sewer systems. Modify the parts cleaning process and the equipment used to reduce the quantity of solvent used and required for disposal; improve inventory control to minimize overstocking, and the resulting needs to dispose of expired materials; and investigate on-side recyling of waste solvents.

PROGRESS: (1) The investigation of modifying the parts cleaning process and the equipment used to reduce the quantity of solvent used and requied for disposal was completed. (2) The investigation of on-site recycling of waste colvents was completed. (3) The investigation of finding alternative solvents and biodegradable solvents began.

SIX-MONTH PLAN: (1) to complete the investigation of finding alternative solvents and biodegradable solvents, (2) to develop a strategy for reducing the high cost of disposal of parts cleaning solvents.

PROJECT: R01256881 TITLE : COST-EFF USE OF SHLDER RUMBLE STRIP
SECTION: MATER./PAVING INVESTIGATOR: McAULIFFE
CLIENT : DESIGN/TRAFFIC & SAFETY DIVISIONS
CONTRACTOR :

PROJECT INITIATION DATE : 04/13/1995
STUDY PROPOSAL DUE : 10/10/1995
STUDY PROPOSAL COMPLETED: 04/13/1995
STUDY PROPOSAL APPROVED : 04/13/1995
ORIGINAL COMPLETION DATE: 09/30/1996
REVISED COMPLETION DATE : 09/30/1996
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 57000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	No Ias Costs on File		33000	60000	24115	24115
TOTAL COSTS	No Ias Costs on File		33000	60000	24115	24115

OBJECTIVE: Compile existing information on rumble strips and confirm or upgrade the current Department policy.

PROGRESS: Surveys sent out and finished literature search.

SIX-MONTH PLAN: Review survey results and report on findings.

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PROJECT: R01257881 TITLE : LOSS OF ENTRAINED AIR HRD CONCRETE
SECTION: MATER./PAVING INVESTIGATOR: CHOU
CLIENT : MATERIALS BUREAU
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 50000

PROJECT INITIATION DATE : 05/19/1995
STUDY PROPOSAL DUE : 11/15/1995
STUDY PROPOSAL COMPLETED: 05/19/1995
STUDY PROPOSAL APPROVED : 05/19/1995
ORIGINAL COMPLETION DATE: 09/30/1997
REVISED COMPLETION DATE : 09/30/1997
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	No Ias Costs on File		10000	50000	7308	7308
TOTAL COSTS	No Ias Costs on File		10000	50000	7308	7308

OBJECTIVE: To develop a user-friendly manual to assist concrete mix designer and precast manufactures in determining when and under what conditions problems can be avoided that would reduce air content (slump, vibration, concrete temperatur, mixing action, admixtures, coloring agents, etc.).

PROGRESS: (1) The literature search for investigating the mechanism of how high-range water reducers (admixtures) affect prescribed air content in cured concrete was completed. (2) The literature search for investigating the mechanism of how other factors such as slump, vibration, concrete temperature, mixing action, and coloring agents affect prescribed air content in cured concrete is underway.

SIX-MONTH PLAN: (1) Continuation of literature search for investigating the mechanism of how factors such as slump, vibration, concrete temperature, mixing action, and coloring agents affect prescribed air content in cured concrete. (2) Conduct laboratory experiments to verify the conclusions obtained from different literature searches.

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: **13-0 IMPLEMENTATION**

SCOPE: Activities conducted under this project are directed at cooperating with Department staff in implementing the results of research conducted by the Bureau and other agencies. In the case of in-house research, this project permits "implementation follow-through" after the research projects are completed and terminated.

Activities will be undertaken primarily by Bureau staff and members of appropriate Department Technical Working Groups who will provide guidance on packaging, planning, promotion, and delivery strategies needed to assess new technologies or products. Bureau staff are available to assist end-users on both the evaluation and initiation of these new products and technologies, and provide a feedback loop for positive communication of findings.

STATUS: Continuing

1995-96 COSTS: $35,000

CLIENT: All Department Units

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PROJECT: R01300881 TITLE : IMPLEMENTATION
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT : VARIOUS
CONTRACTOR :

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 35000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	1774	1774	35000	35000	25577	25577
TOTAL COSTS	1774	1774	35000	35000	25577	25577

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PROJECT: R01310881 TITLE : IMPLEMENTATION OF GLASGRID
SECTION: TECH/TRAN INVESTIGATOR: DR. MATHIOUDAKIS
CLIENT :
CONTRACTOR :

PROJECT INITIATION DATE : 10/01/1992
STUDY PROPOSAL DUE : 03/30/1993
STUDY PROPOSAL COMPLETED: 10/01/1992
STUDY PROPOSAL APPROVED : 10/01/1992
ORIGINAL COMPLETION DATE: 03/31/1995
REVISED COMPLETION DATE : 03/31/1996
REVISION NUMBER : 3

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 40000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	281	42842	7800	49950	5700	47850
TOTAL COSTS	281	42842	7800	49950	5700	47850

OBJECTIVE: Evaluate Glasgrid's ability to retard reflective cracking and compare its performance and cost-effectiveness to sections with 1" thicker overlays.

PROGRESS: First crack survey was conducted in April 1995.

SIX-MONTH PLAN: Crack surveys will be done in Fall 1995 and Spring 1996.

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PROJECT: R01311881 TITLE : HYPERTEXT IMPL FOR CONST MANUALS
SECTION: ADMINISTRATION INVESTIGATOR: TORRE
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 40000

PROJECT INITIATION DATE : 01/31/1993
STUDY PROPOSAL DUE : 07/30/1993
STUDY PROPOSAL COMPLETED: 02/01/1993
STUDY PROPOSAL APPROVED : 04/01/1993
ORIGINAL COMPLETION DATE: 04/30/1994
REVISED COMPLETION DATE : 09/30/1996
REVISION NUMBER : 1

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	325	578	0	44000	0	0
TOTAL COSTS	325	578	0	44000	0	0

OBJECTIVE: Implement a microcomputer-based hypertext database for the Construction Supervision Manual (CSM) and Manual of Uniform Record Keeping (MURK).

PROGRESS: This SPR study is tied to a Construction Division 1993 Operational Goal of CSM/MURK updates. Updating of the manuals was delayed. A draft copy of the manuals was distributed in February 1995 for Regional Office review.

SIX-MONTH PLAN: Regional Construction Group staff will begin "logic-tree" development in the Fall of 1995. It is expected this project will be completed in April 1996. Main office Construction Division staff will begin creation of hypertext in the Fall of 1995. The use of Rutgers Univesity staff is being re-evaluated.

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: **13-14 IMPLEMENTATION OF SHRP PRODUCTS**

MANAGER: Robert A. Valenti, Civil Engineer III

OBJECTIVE: To ensure timely evaluation and implementation of SHRP products.

SCOPE: This project covers all activities performed by the Bureau, Department Implementation Committees, and end-users for evaluation and implementation of SHRP products. Scheduling, field evaluation, and final reporting activities for all SHRP products will be reported under this function.

Activities conducted under this project during the program year included:

1. The evaluation and implementation of twelve SHRP products including Falling Weight Deflectometer and Road Weather Information Systems.

2. Two meetings of the Department's SHRP Implementation Committee, chaired by Paul Mack, were convened in October, 1994 and June, 1995.

3. The second SHRP Implementation semi-annual progress report on the evaluation of SHRP products was published in April, 1995.

STATUS: Continuing

ESTIMATED 1995-96 COSTS: $75,000

CLIENT: All Department Units

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PROJECT: R01314881 TITLE : IMPLEMENTATION -SHRP PRODUCTS
SECTION: TECH/TRAN INVESTIGATOR: VALENTI
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 75000

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	78435	78435	0	75000	0	0
TOTAL COSTS	78435	78435	0	75000	0	0

OBJECTIVE: Ensure the timely evaluation and implementation of SHRP products.

PROGRESS: Asphalt pilot project constructed and Level I mix design demonstration project completed.

SIX-MONTH PLAN: Continue evaluation of products and incrementally report findings.

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: **14–01 Local Technology Assistance Program**

SCOPE: Cornell University, sponsored by the Department of Transportation and FHWA, has been contracted to provide technical engineering services to local municipal highway personnel. These services are provided through formal instructional classes, direct mailings, conferences, and phone calls.

Activities conducted under this project during the program period included:

1. Cornell published its annual report highlighting its CY1994 accomplishments. This report was reviewed by Transportation Research and forwarded to FHWA.

2. Upon Transportation Research recommendation, FHWA approved the 1995 Work Plan for LTAP.

3. On November 10, 1994, Robert Valenti attended the LTAP Planning Committee Meeting in Syracuse, New York. During this meeting, the agenda for the 1995 Annual Highway School, June 1995 was determined.

4. Robert Valenti attended the Annual Highway Superintendents School, June 5-7, 1995 in Ithaca, New York. He also attended the post school planning committee meeting where plans for the 1996 school were discussed.

STATUS: Continuing

ESTIMATED 1995-96 COSTS: $5,000

CLIENT: Municipal highway officials in all local jurisdictions.

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PROJECT:	R01401881	TITLE :	LOCAL TECHNICAL ASSISTANCE PROGRAM	PROJECT INITIATION DATE :	10/01/1994
SECTION:	TECH/TRAN	INVESTIGATOR:	VALENTI	STUDY PROPOSAL DUE :	03/30/1995
		CLIENT :		STUDY PROPOSAL COMPLETED:	10/01/1994
		CONTRACTOR :		STUDY PROPOSAL APPROVED :	10/01/1994
				ORIGINAL COMPLETION DATE:	09/30/1995
		APPROVED STUDY PROPOSAL AMOUNT :	1	REVISED COMPLETION DATE :	09/30/1995
		ACTUAL STUDY PROPOSAL AMOUNT :	0	REVISION NUMBER :	0
		APPROVED ORIGINAL BUDGET AMOUNT:	10000		

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	No Ias Costs on File		0	5000	0	0
TOTAL COSTS	No Ias Costs on File		0	5000	0	0

OBJECTIVE: Provide technical engineering services to local municipal highway personnel through contractual agreement with Cornell University.

PROGRESS: 1995 Annual Highway School conducted.

SIX-MONTH PLAN: Provide Technology Transfer activities as necessary. Plan 1996 School. Publish calendar year 1995 report.

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: **15-01 ENGINEERING COMPUTER SYSTEMS SUPPORT**

MANAGER: Deniz Sandhu, Engineering Research Specialist II

OBJECTIVE: To provide efficient use of computer resources.

SCOPE: This project covers all activities performed by the Bureau's Senior Computer Analyst and Computer Coordinator, including planning, management, and maintenance of the hardware and software for the Bureau's computer network and personal computers. This function also includes software development and programming for Engineering Research projects and consultations.

Activities conducted under this project during the program year include:

1. Oliver Hunter completed the development of the pen-based data collection system for Real Estate Division. He provided training on the use of hardware and software, to potential users of the system. The Real Estate Division will be trying out the system in a pilot project.

2. Oliver Hunter organized a vendor visit form Toshiba American Information Systems, Inc. representatives from the Materials Bureau, Engineering Automation Resource and Systems Group. Transportation Maintenance, Traffic Engineering and Safety, Real Estate Divisions were introduced to the company's high performance pen-base computer, DYNAPAD.

3. Novell file server and workstation utilities have been migrated to this new local area network. This improved the efficiency of operations and provided more user-friendly environment for all software applications.

4. Full Internet access including World Wide Browser has been made available for use by Bureau personnel.

STATUS: Continuing

ESTIMATED 1995-96 COSTS: $86,000

CLIENT: All Department Units

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IAS RUN DATE IS 06/29/1995 FHWA SEMI-ANNUAL

PROJECT: R01501881 TITLE : ENGINEERING COMPUTER SYS SUPPORT
SECTION: TECH/TRAN INVESTIGATOR: DR. SANDHU
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 120000

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	85676	85676	120000	120000	87692	87692
TOTAL COSTS	85676	85676	120000	120000	87692	87692

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PROJECT: R02000881 TITLE : CONTRACT RESEARCH
SECTION: ADMINISTRATION INVESTIGATOR: CAMPBELL
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 1301000

PROJECT INITIATION DATE : 10/01/1993
STUDY PROPOSAL DUE : 03/30/1994
STUDY PROPOSAL COMPLETED: 10/01/1993
STUDY PROPOSAL APPROVED : 10/01/1993
ORIGINAL COMPLETION DATE: 09/30/1994
REVISED COMPLETION DATE : 09/30/1996
REVISION NUMBER : 1

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	52612	121406	500000	1301000	365385	865385
TOTAL COSTS	52612	121406	500000	1200101	365385	865385

OBJECTIVE: To conduct a program of contract research to address Department needs which can not be handled by the Engineering Research and Development Bureau.

PROGRESS: 1) Comptroller approval of the four negotiated project contracts has been received. 2) The University Research Consortium has been selected and contract negotiations begun. 3) Ten second cycle research problems have been selected and developed.

SIX-MONTH PLAN: 1) Work begun on the four approved projects. 2) Research Consortium contract negotiations completed and contract approval received.

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PROJECT: R02002881 TITLE : IMPR SFTY FOR SNOW PLOW REDUC'D VIS
SECTION: TECH/TRAN INVESTIGATOR: D. AMSLER
CLIENT : HIGHWAY MAINTENANCE
CONTRACTOR : RPI

PROJECT INITIATION DATE : 04/22/1994
STUDY PROPOSAL DUE : 10/19/1994
STUDY PROPOSAL COMPLETED: 01/27/1995
STUDY PROPOSAL APPROVED : 07/20/1995
ORIGINAL COMPLETION DATE: 05/31/1996
REVISED COMPLETION DATE : 05/31/1996
REVISION NUMBER : 1

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 60000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	627	627	0	60000	0	0
TOTAL COSTS	627	627	0	60000	0	0

OBJECTIVE: To develop methods and products that increase visibility, dimish stress and fatigue and increase driver and public safety, productivity and effectiveness.

PROGRESS: Comptroller approval received; work initiated.

SIX-MONTH PLAN: Survey of snow plow operators designed and administered; testing design and methodology completed.

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PROJECT: R02003881 TITLE : COST EFF OF CONSOLIDAT'G GOV HY SVS
SECTION: TECH/TRAN INVESTIGATOR: E. FAHRENKOPF
CLIENT : EQUIPMENT MANAGEMENT
CONTRACTOR : CORNELL UNIVERSITY

PROJECT INITIATION DATE : 04/22/1994
STUDY PROPOSAL DUE : 10/19/1994
STUDY PROPOSAL COMPLETED: 01/27/1995
STUDY PROPOSAL APPROVED : 07/20/1995
ORIGINAL COMPLETION DATE: 10/31/1996
REVISED COMPLETION DATE : 11/11/1911
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 59030

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	0	59030	0	0
TOTAL COSTS	0	0	0	59030	0	0

OBJECTIVE: To make recommendations for changes in the structuring of State aid payments and other intergovernmental transfers in order to encourage consolidation of highway services.

PROGRESS: Comptroller approval received; work initiated.

SIX-MONTH PLAN: Cases for study identified and case study design developed and approved.

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PROJECT: R02004881 TITLE : EFF MKT OF TRANSIT SYS AND HOV
SECTION: TECH/TRAN INVESTIGATOR: R. SVEJKOVSKY
CLIENT : REG 3 PLANNING & PROGRAM DEV
CONTRACTOR : CORNELL UNIVERSITY

PROJECT INITIATION DATE : 04/22/1994
STUDY PROPOSAL DUE : 10/19/1994
STUDY PROPOSAL COMPLETED: 01/27/1995
STUDY PROPOSAL APPROVED : 07/20/1995
ORIGINAL COMPLETION DATE: 02/28/1997
REVISED COMPLETION DATE : 02/28/1997
REVISION NUMBER : 1

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 127055

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	125	125	0	127055	0	0
TOTAL COSTS	125	125	0	127055	0	0

OBJECTIVE: To discover and recommend effective outreach programs and policy actions needed to achieve a shift to intermodal transportation systems.

PROGRESS: Comptroller approval received; work initiated.

SIX-MONTH PLAN: Define the characteristics of the study area; develop study methodology and deliver an interim report.

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PROJECT: R02005881 TITLE : REV & DEV LIFE-CYCLE COST & NETW
SECTION: TECH/TRAN INVESTIGATOR: J.SHUFON
CLIENT : STRATEGIC PLANNING
CONTRACTOR : CORNELL UNIVERSITY

PROJECT INITIATION DATE : 04/22/1994
STUDY PROPOSAL DUE : 10/19/1994
STUDY PROPOSAL COMPLETED: 01/27/1995
STUDY PROPOSAL APPROVED : 07/20/1995
ORIGINAL COMPLETION DATE: 09/30/1997
REVISED COMPLETION DATE : 09/30/1997
REVISION NUMBER : 1

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 130325

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	832	0	130325	0	0
TOTAL COSTS	0	832	0	130325	0	0

OBJECTIVE: To crease a step-by-step manual of procedures and data requirements to perform life-cycle cost and network analysis for New York State Pavements.

PROGRESS: Comptroller approval received and work initiated.

SIX-MONTH PLAN: Review, evaluation and recommendations for the NYSDOT predictive capability for pavement life and cost analysis procedures and associated interim reports.

PROJECT: R02006881 TITLE : LATERAL PROTECT SHORT TERM WK ZONES
SECTION: TECH/TRAN INVESTIGATOR: D. MENCUCCI
CLIENT : SAFETY & HEALTH
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 160000

PROJECT INITIATION DATE : 04/22/1994
STUDY PROPOSAL DUE : 10/19/1994
STUDY PROPOSAL COMPLETED: 11/11/1911
STUDY PROPOSAL APPROVED : 11/11/1911
ORIGINAL COMPLETION DATE: 11/11/1911
REVISED COMPLETION DATE : 11/11/1911
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	0	0	0	0	0
TOTAL COSTS	0	0	0	0	0	0

OBJECTIVE: To develop and test a prototype moving lateral intrusion barrier for short-term and moving highway work zones.

PROGRESS: RFP received five proposals. First stage evaluation in progress.

SIX-MONTH PLAN: Contractor selected, scope of services negotiated.

SECTION II

Experimentation Program
Type A&B Continuing Studies

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PROJECT: R21201881 TITLE : DETER. OVERLOAD CAPACITY OF BRIDGES
SECTION: STRUCTURES INVESTIGATOR: DR. FU
CLIENT : STRUCTURES DESIGN & CONSTR. DIV.
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 8000
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 121900

PROJECT INITIATION DATE : 05/04/1990
STUDY PROPOSAL DUE : 10/31/1990
STUDY PROPOSAL COMPLETED: 03/18/1991
STUDY PROPOSAL APPROVED : 07/12/1991
ORIGINAL COMPLETION DATE: 02/28/1993
REVISED COMPLETION DATE : 03/30/1996
REVISION NUMBER : 3

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	16845	98141	20000	121900	14615	111515
TOTAL COSTS	16845	98141	20000	121900	14615	111515

OBJECTIVE: To develop an analytical procedure for R-permit bridge checking, using load and resistance factor method.

PROGRESS: The final report has been accepted by the client. Publication is underway.

SIX-MONTH PLAN: Publish and distribute the report.

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PROJECT: R21401881 TITLE : PERF OF 2 RUBBER-MOD ASPH OVERLAYS
SECTION: MATER./PAVING INVESTIGATOR: VANBRAMER
CLIENT : MATERIALS BUREAU
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 2500
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 252500

PROJECT INITIATION DATE : 02/28/1991
STUDY PROPOSAL DUE : 08/27/1991
STUDY PROPOSAL COMPLETED: 09/20/1991
STUDY PROPOSAL APPROVED : 01/24/1992
ORIGINAL COMPLETION DATE: 03/31/1995
REVISED COMPLETION DATE : 09/30/1996
REVISION NUMBER : 2

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	36955	122514	38000	252500	27769	232269
TOTAL COSTS	36955	122514	38000	252500	27769	232269

OBJECTIVE: To monitor the performance of the two R-M-A test sites and to estimate service life and performance characteristics.

PROGRESS: FWD results were finalized and the final report written. It is under section review.

SIX-MONTH PLAN: Complete the review and editing of the final report; publish and distribute.

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PROJECT: R22401881 TITLE : DEV OF OVERLAY DESIGN PROCE FOR NYS
SECTION: MATER./PAVING INVESTIGATOR: DR. BENDAÑA
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 5000
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 106000

PROJECT INITIATION DATE : 12/02/1993
STUDY PROPOSAL DUE : 05/31/1994
STUDY PROPOSAL COMPLETED: 07/06/1994
STUDY PROPOSAL APPROVED : 11/08/1994
ORIGINAL COMPLETION DATE: 09/30/1996
REVISED COMPLETION DATE : / /
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	41262	44522	54000	106000	39462	44462
TOTAL COSTS	41262	44522	54000	106000	39462	44462

OBJECTIVE: To develop an overlay design procedure suitable for NYS and acceptable to FHWA.

PROGRESS: Literature search was performed and reviewed. A draft summary was written. A compilation of historical overlay performance data is underway. A bonded concrete overlay test section on Route 8, Region 2 has been initiated. Specifications of these items to fit this job were reviewed and revised. A PCC overlay test section on rubblized pavement is being installed in Waverly, Route 17, Region 6. Also, FWD data before and after overlays has been collected and analyzed for various projects.

SIX-MONTH PLAN: Continue the study according to the work plan.

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PROJECT: R22501881 TITLE : HYDR-FRAC TEST APPAR & PROC DET AGG
SECTION: MATER./PAVING INVESTIGATOR: MCAULIFFE
CLIENT : MATERIALS
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 5000
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 200000

PROJECT INITIATION DATE : 01/24/1994
STUDY PROPOSAL DUE : 07/23/1994
STUDY PROPOSAL COMPLETED: 04/11/1994
STUDY PROPOSAL APPROVED : 06/10/1994
ORIGINAL COMPLETION DATE: 06/30/1996
REVISED COMPLETION DATE : 06/30/1996
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	32879	37000	40000	180000	29231	34231
TOTAL COSTS	22879	37000	60000	200000	43846	48846

OBJECTIVE: To develop a simplified test chamber. The SHRP device is cumbersome, and would be difficult to assemble/disassemble as required for the test. To develop an automated test procedure, which will decrease the time required to perform the SHRP test. To interpret results from the new test procedure and apparatus. To determine the relationships between the hydraulic-fracture test and a) the magnesium-sulfate test, b) the freeze-thaw test, and c) actual aggregate performance. The expected speed of this procedure and a direct correlation of its results with other procedures would be a major improvement.

PROGRESS: Finished machining of apparatus. 75% assembled.

SIX-MONTH PLAN: Finish assembling appartus and develop preliminary test procedure and begin testing aggregate.

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PROJECT: R19201881 TITLE : EFFECTIVENESS HAND SIGNAL DEVICES
SECTION: MATER./PAVING INVESTIGATOR: DR. SANDHU
CLIENT : MAINTENANCE
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 5000
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 139800

PROJECT INITIATION DATE : 07/24/1985
STUDY PROPOSAL DUE : 01/20/1986
STUDY PROPOSAL COMPLETED: 11/25/1985
STUDY PROPOSAL APPROVED : 01/31/1986
ORIGINAL COMPLETION DATE: 03/31/1988
REVISED COMPLETION DATE : 03/31/1996
REVISION NUMBER : 11

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	216	133360	6600	139800	4823	138023
TOTAL COSTS	216	133360	6600	139800	4823	138023

OBJECTIVE: This project has three specific objectives: (1) to determine the relative effectiveness of the stop-slow paddle and the signal flag under various conditions, in terms of motorist detection and understanding, (2) to determine the effects of signaling procedure and signal-person uniform on signal detection and understandings, and (3) to determine other factors relating to the desirability and effectivesness of the two devices.

PROGRESS: A statistical analysis of data has been completed and a different statistical analysis is underway. This will be incorporated into the existing draft report.

SIX-MONTH PLAN: Prepare draft of final report and submit to client for approval.

PROJECT: R21301881 TITLE : DESIGN METHODS OF SPRAYED SEALS
SECTION: TECH/TRAN INVESTIGATOR: VALENTI
CLIENT : HIGHWAY MAINTENANCE DIVISION
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 2000
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 34000

PROJECT INITIATION DATE : 02/28/1991
STUDY PROPOSAL DUE : 08/27/1991
STUDY PROPOSAL COMPLETED: 04/05/1991
STUDY PROPOSAL APPROVED : 08/06/1991
ORIGINAL COMPLETION DATE: 07/31/1992
REVISED COMPLETION DATE : 10/31/1995
REVISION NUMBER : 4

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	9810	25974	12700	39000	9281	35581
TOTAL COSTS	9810	25974	12700	39000	9281	35581

OBJECTIVE: To demonstrate chip seals in the New York environment and estimate where chip seals are applicable, taking into consideration traffic volume and existing pavement conditions.

PROGRESS: Draft final report and expert system have been completed and are being edited.

SIX-MONTH PLAN: Publish final report.

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PROJECT: R21501881 TITLE : DEICER USES
SECTION: MATER./PAVING INVESTIGATOR: DR. HOSSAIN
CLIENT : HIGHWAY MAINTENANCE DIVISION
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 3000
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 60000

PROJECT INITIATION DATE : 03/14/1991
STUDY PROPOSAL DUE : 09/10/1991
STUDY PROPOSAL COMPLETED: 12/15/1992
STUDY PROPOSAL APPROVED : 04/06/1993
ORIGINAL COMPLETION DATE: 03/31/1994
REVISED COMPLETION DATE : 09/30/1996
REVISION NUMBER : 2

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	8629	29538	90000	160000	65769	125769
TOTAL COSTS	8629	29538	90000	160000	65769	125769

OBJECTIVE: This project will investigate the optimum salt/abrasive mix ratio and application rate for use in winter highway maintenance operations.

PROGRESS: Complete all laboratory friction tests using British Pendulum Tester. Complete statistical analysis of data. Begin report writing.

SIX-MONTH PLAN: Field testing will be eliminated. A final report based on laboratory tests will be completed and published.

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PROJECT: R21701881 TITLE : DETER OF LONG TERM PERF CHEMI GROUT
SECTION: TECH/TRAN INVESTIGATOR: DHAR
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 3000
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 60000

PROJECT INITIATION DATE : 08/27/1991
STUDY PROPOSAL DUE : 02/23/1992
STUDY PROPOSAL COMPLETED: 12/30/1992
STUDY PROPOSAL APPROVED : 04/02/1993
ORIGINAL COMPLETION DATE: 05/31/1994
REVISED COMPLETION DATE : 03/31/1996
REVISION NUMBER : 2

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	0	24977	20000	60000	14615	44115
TOTAL COSTS	0	24977	20000	60000	14615	44115

OBJECTIVE: To develop a greater understanding of long-term performance of different types of chemical grouts in concrete.

PROGRESS: Report preparations are in progress.

SIX-MONTH PLAN: Complete project report.

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PROJECT: R21801881 TITLE : ENGRG AUTOMATION TOOLS EVAL/IMP
SECTION: TECH/TRAN INVESTIGATOR: GREEN
CLIENT : VARIOUS ENGINEERING GROUPS-DEPT
CONTRACTOR :

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 18000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	2229	11446	18000	18000	13154	13154
TOTAL COSTS	2229	11446	18000	18000	13154	13154

OBJECTIVE: To provide evaluations, implementation plans, procedures and training for several new engineering automation tools that are currently being developed by CADD vendor or by third party vendors compatible with the CADD vendor.

PROGRESS: The understanding and implementation techniques of the design visualization tool of creating a video for use in improving communications to the public was begun. The "English-to-metric" (and vise-versa) software options were evaluated and a decision reached; fiscal constraints may impede implementation. We continued to provide guidance and look for additional software tools for use in hydraulics/hydrology. Survey data processing software was evaluted and a selection made; fiscal constraints could also have an impact on implementation.

SIX-MONTH PLAN: Continue the evaluation of video techniques and start an implementation plan. Continue to evaluate the drafting packages: Draftworks and PowerDraft. Accomplish as much implementation of the previously selected products as the fiscal environment will allow.

PROJECT: R22001881 TITLE : EVALUATION OF WINTER TRAF ACCIDENT
SECTION: TECH/TRAN INVESTIGATOR: DR. ELKORDY
CLIENT : MAINTENANCE/TRAFFIC & SAFETY
CONTRACTOR :

PROJECT INITIATION DATE : 04/27/1992
STUDY PROPOSAL DUE : 10/24/1992
STUDY PROPOSAL COMPLETED: 12/02/1992
STUDY PROPOSAL APPROVED : 06/11/1992
ORIGINAL COMPLETION DATE: 12/31/1995
REVISED COMPLETION DATE : 12/31/1995
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 3500
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 106000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	2009	7665	21000	106000	15346	68846
TOTAL COSTS	2009	7665	21000	106000	15346	68846

OBJECTIVE: To find out if winter severity has statistically significant impact on vehicle traffic accidents. If impact does exist, conduct cost benefit analysis to determine whether snow/ice control equipment should be assigned based on the severity of the winter.

PROGRESS: The project has been re-initiated after the leave of the principal investigator. Literature search according to the modified objective has been developed. Research plan and corresponding data are currently being developed.

SIX-MONTH PLAN: To complete data collection, tabulate it, and analyze it, and to complete the report.

SECTION III

Experimentation Program
Pre-Project Planning

SECTION IV

Proposed Projects Not Yet Initiated

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: 93-052 DEVELOPMENT OF IMPROVED PAVEMENT PERFORMANCE PREDICTION MODEL

PROBLEM: The Department's current pavement management system plan calls for the development of model to predict performance of both rehabilitation and maintenance treatments, given site specific variables such as soils, climate, and traffic. Volume II of the Rehabilitation Manual only gives average expected service lives under limited conditions for each treatment. Predicts service life is an important input to the life-cycle cost analysis, whose results will decide the selection o the preferred treatment for each projects. NYSDOT does not have any formal and comprehensive pavements performance prediction models that can meet this pavement management requirement. The AASHTO pavement performance model that NYSDOT recently adopted was only calibrated with very limited past performance and experience.

OBJECTIVE: Validate and calibrate the AASHTO performance model. Develop new models that can predicts the effect of each rehabilitation and maintenance treatment on safety, serviceability, and service life of a projects, by properly considering relevant variables including soils, climate, traffick drainage features, and existing pavements conditions.

BENEFITS: At the project level, designs can be effectively made to accomplish the goals of improving safety and serviceability with the prediction models. The life-cycle cost analysis can yield more accurate results and the most cost-effective treatment can be selected. At the network level, the long-term future needs estimating can be based on the predicted service lives of he treatments.

CLIENT: Pavement Management Group, Office of Operations
Technical Services Division
Facilities Design Division

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: 93-080 ANALYSIS OF INNOVATIVE WALL SYSTEMS

PROBLEM: New retaining wall systems have been recently introduced into the market place. Some of these systems are considered to be "hybrid" in nature, as they were conceived, designed and built as a combination of both mechanically stabilized earth systems (MSES) and gravity retaining walls (GRW). It is anticipated that design principles of both MSES and GRW will govern their behavior and that these new systems will inherit the merits of both their ancestors and also become more cost-effective than the traditional MSES or GRW. However, here is a debate as to which MSES and GRW design principles relative to external and internal stability are applicable. This issue must be resolves to that a comprehensive design approach can be adopted by NYSDOT which would enable the Soil Mechanics Bureau of the NYSDOT to perform a routine reviews of these systems or approval.

OBJECTIVES:

1. Understand the mode(s) of failure of hybrid wall systems as compared to MSES and GRW systems.
2. Develop a comprehensive design procedure.

BENEFITS:

1. Understand the behavior of hybrid wall systems.
2. Development of a statewide design methodology of hybrid wall systems.
3. Speedy approval of these wall systems designs for State projects.
4. Savings in construction costs.

CLIENT: Soil Mechanics Bureau

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: 94-029 / 94-039 **PILE LOAD DISTRIBUTION AND EARTH PRESSURE FOR INTEGRAL ABUTMENTS**

PROBLEM: Two problems are to be addressed: 1) the mechanism of load distribution among piles of integral abutments is not known, which leads to varying opinions during design (this is particularly true for steel and prestressed-concrete I-girders, because integral abutments are poured after these ar replaced directly on some of the piles), and 2) earth pressure on integral abutments is calculated based on passive earth pressure, but this is believed to overestimate actual pressure, leading to overly conservative design.

OBJECTIVES: To develop a more reliable load-distribution procedure for structure design in response to the first problem, and to develop a realistic procedure to estimate earth pressure for structural design for the second problem.

BENEFITS:

1. Potential savings, if current methods are found to be overly conservative.
2. Improved understanding of load-distribution mechanisms and improvements in design for the first problem.
3. Improved procedures for earth-pressure estimation for the second problem.

CLIENTS: Structures Design and Construction Division
Soil Mechanics Bureau

SECTION V

Pooled SPR Fund Projects

New York State Department of Transportation
Transportation Research and Development Bureau

Durability of Geosynthetics
SPR-2 (155)

Geosynthetics have been used in retaining wall applications for the past 15 years. Their use in relatively short design life, noncritical retaining wall applications is increasing rapidly due to their proven cost effectiveness. Most engineers, however, are reluctant to use them in long design life applications (i.e., design lives of 50 years or more) because of their current inability to predict the design life of the material. A geosynthetic has reached its design life when the actual strength of the geosynthetic has decreased to the point that it is equal to or less than the strength required for the geosynthetic.

Geosynthetic strength loss during its design life, when buried in soil, is the result of three main factors: construction damage during installation, creep under load, and chemical durability (i.e., aging). Chemical aging includes phenomena such as oxidation, hydrolysis, and environmental stress cracking. Some definitive data is available regarding the geosynthetic strength loss which results from construction damage and creep. However, little data is available regarding the long-term strength loss resulting from chemical aging, as well as how construction damage, creep, and chemical aging combine to produce an overall strength loss.

The research which has been performed regarding chemical aging has provided results which are very limited in their application, or results which appear to conflict with one another. For example, a recent US study where polyester and polypropylene geotextiles were placed in relatively high pH solutions (i.e., pH of 10 to 12) for up to 4 months showed that one polyester fabric lost 30 to 50 percent of its strength whereas the polyester fabric showed practically no strength loss. The polypropylene fabrics showed no significant strength loss.

New York State Contributions:

FFY 1991	—	$10,000
FFY 1992	—	$5,000
FFY 1993	—	$1,000
FFY 1994	—	$1,000
FFY 1995	—	$1,000

New York State Department of Transportation
Transportation Research and Development Bureau

Performance Evaluation of Crumb Rubber Modified (CRM) Asphalt Pavements
SPR–2 (166)

The growing nationwide interest in alternative used for scrap tires has caused many state highway agencies to study and consider the use of CRM technology in asphalt pavements. There are two principal unresolved issues related to the use of CRM in asphalt paving materials. These modified asphalt mixes must be field–evaluated to establish expected levels of performance and cost–effectiveness. In addition, the ability to recycle asphalt paving mixes containing CRM has not been demonstrated.

These unresolved issues have been identified for study by the Secretary of Transportation in Section 1038 of the Intermodal Surface Transportation Efficiency Act (ISTEA) enacted in December 1991. The congressional study will collect and evaluate all existing available data. this pooled–fund study will address areas of field performance, cost–effectiveness, and recycling of CRM asphalt pavements which are not adequately resolved in the ISTEA study. In addition, the Administrator of the Environmental Protection Agency has the responsibility to determine the environmental and health effects of using CRM asphalt pavements and recycling pavements already containing crumb rubber. The potential exists for coupling this effort with pooled–fund projects.

The objectives of this study are:

1. Conduct laboratory evaluations of CRM asphalt mixtures to determine mix design and laboratory performance characteristics.

2. Design and construct test sections of CRM asphalt pavements in various climatic regions of the United States, including appropriate control sections, to evaluate field performance.

3. Conduct annual evaluations and document field performance of recycled CRM asphalt pavements.

New York State Contributions:

FFY 1993	—	$5,000
FFY 1994	—	$5,000
FFY 1995	—	$5,000
FFY 1996	—	$5,000
FFY 1997	—	$5,000
FFY 1998	—	$5,000
FFY 1999	—	$5,000

New York State Department of Transportation
Transportation Research and Development Bureau

Management of the Discharge and Quality of Highway Runoff in Karst Areas to Control Impacts to Ground Water
SPR–2 (168)

State and federal concerns about water quality have resulted in laws and regulations for impacts to surface and ground water from non–point pollutant sources. The EPA Advisory Board dealing with ground water research needs has identified remediation measures for fractured formation and karst topography. The quality and quantity of highway runoff water as it starts to infiltrate the soil has been evaluated and continues to be assessed. There have been extensive evaluations of runoff quality from highway construction, maintenance and operations, and management practices of treatment of surface water runoff features such as detention retention ponds.

The general impacts of highway stormwater on ground water are highly variable and unusually difficult to quantify considering the background water quality, ameliorating effects of surface water areas and soil layers, and the various other sources of contaminants. Two simple types of cases have been under investigation. For sensitive areas with shallow ground water and permeable overburdens the impacts of deicing salts on ground water are being evaluated and thus far only moderate but limited impacts have been noted only for salt components. For infiltration ponds also with permeable soils and shallow water tables in Florida, extensive monitoring indicates that highway runoff water is not a noteworthy source of ground water contamination. Evidently, even through short distances in permeable soils ordinary highway runoff has reasonable residence time to reduce water contaminants such as suspended sediments, pathogens, and toxic hydrocarbons and nitrogenous compounds to acceptable levels by the time the water table is reached. (Logically, highway stormwater runoff impacts to ground water should be even less significant where there is a deeper water table and less permeable overburden soil.)

In contrast to most locations, in areas of karst topography, residence times for natural pollutant reductions are uncertain or inadequate. The drainage patterns are poorly defined. The internal pore structure and the occurrence of any appreciable filtration as water passes from the surface to the water table are uncertain. However, there have been observations that clearly have shown that highway surface runoff and other surface runoff in karst areas have impacted ground water quality, most vividly seen by discolored spring water. It is desirable to address the various facets of highway stormwater runoff in karst areas and develop appropriate best management practices for routing of this water and land or water treatment practices to make impacts to ground water in karst areas acceptable.

New York State Contributions:

FFY 1993 — $10,000

FFY 1994 — $10,000

FFY 1995 — $10,000

New York State Department of Transportation
Transportation Research and Development Bureau

High Strength Concrete for Bridges
SPR–2 (170)

In the 1950s, practice in the United States called for 4,000 to 5,000 psi (27.5 to 34.5 MPa) strength for prestressed concrete. Prior to the 1970s, concrete designers were content with utilization of 5,000 to 6,000 psi (34.5 and 41 MPa) strength concrete as easily attainable compressive strengths for structural members. Then during the late 1970s and early 1980s, it was demonstrated that application of 9,000 to 11,000 psi (62 to 76 MPa) strength concrete was not only practical but economically feasible. Now, concrete with compressive strengths of 15,000 to 20,000 psi (103 to 138 MPa) is commercially available in the United States.

Over the past 15 to 20 years, considerable research, including SHRP, has been conducted on high strength concretes, primarily dealing with selection of materials, development of concrete mix design criteria, determination of basic physical properties of concrete, and structural behavior of members made of high strength concrete. Research on the benefits of using high strength concrete for bridges has shown that bridge span capacities can be increased, wider girder spacings (and hence a fewer number of girders) can be used, concrete compressive and flexural capacities can be increased, and that concrete durability can be improved. However, despite all of these positive research results, relatively little has been done regarding implementation of high strength concretes in bridges.

The objective of the proposed study is to design, build, instrument, and test a bridge constructed of almost entirely of high strength concrete, so as to encourage states to incorporate this technology into their bridge programs. This objective can be accomplished by the following tasks:

1. Design a bridge deck, superstructure, and substructure to be constructed of concrete with compressive strengths ranging from 10,000 to 12,000 psi (69 MPa to 83 MPa). The bridge would be a reasonable length.

2. Work with concrete suppliers and testing organization to develop appropriate quality control procedures and testing.

3. Construct the bridge using local labor forces so as to demonstrate any needed re–training.

4. Instrument the bridge and monitor its performance for an appropriate period of time (about 3 years).

Other countries, such as Canada and France, have already constructed or are planning to construct experimental high strength concrete bridges such as the one proposed here. It is hoped that the U.S. can effectively use this technology for our nation's bridges. A recent progress report (December 1992) by the Construction Technology Laboratory and Tulane University for the Louisiana Department of Transportation and Development, "Feasibility Evaluation of Utilizing High Strength Concrete in Design and Construction of Highway Bridge Structures" is available from Harold "Skip" Paul of the Louisiana Transportation Center (phone:

(504) 767–9124; fax: (504) 767–9108). Also a recent state–of–the–art paper, "High Strength Concrete Bridges" is available from Sue Lane, the FHWA contact.

New York State Contributions:

FFY 1993 — $20,000

FFY 1994 — $20,000

FFY 1995 — $20,000

FFY 1996 — $20,000

New York State Department of Transportation
Transportation Research and Development Bureau

Predicting HOV Facility Demand
SPR–2 (171)

It is widely accepted that HOV ridership is a function of travel time savings over roadway congestion. However, predicting ridership on HOV facilities, especially on a 20–year horizon, less widely understood. More information is needed on the correlation between ridership demand and travel time savings as well as other contributing factors. Impacts of different occupancy requirements on HOV ridership are also required.

This study will develop and evaluate methods to predict carpool and bus ridership on HOV facilities with sensitivity to general–purpose lane capacity, HOV occupancy requirements, and peak period freeway congestion.

New York State Contributions:

FFY 1994 — $10,000

FFY 1995 — $10,000

FFY 1996 — $10,000

New York State Department of Transportation
Transportation Research and Development Bureau

Aerial Platform System for Bridge Inspection (Phase II)
SPR-2 (172)

Many bridges are categorized as fracture critical. Their collapse could result in many deaths and injuries. Therefore, all bridges on public roads are to be inspected by the states as mandated by the National Bridge Inspection Service Standards of the Federal Highway Administration. Bridge inspection requires lane closure, thus contributing to traffic congestion and delay to the traveling public. In addition, inspectors are highly exposed to a potentially dangerous environment.

After performing a feasibility study on the idea of using an unmanned device for bridge inspection, the California Department of Transportation (CALTRANS) decided to develop an aerial vehicle equipped with a vision sensing system to inspect fracture critical bridges. In addition, this vehicle should be able to make contact with structures without any damage to the structure or the inspection vehicle. The first phase of this study is near completion. The deliverable product will include an aerobot vehicle, an umbilical tether, a control panel, a drawing package, a drive motor power supply and control, and operation and service manuals.

The objective of this study is to complete the second phase of the CALTRANS study. This includes features for enhancing stability characteristics through development of an integrated arm that is capable of attaching to a structure and with addition of proximity sensors and air speed indicators to integrate with the computer controls. Also, inspection video equipment will be added.

New York State Contributions:

FFY 1994 — $20,000

FFY 1995 — $10,000

New York State Department of Transportation
Transportation Research and Development Bureau

Evaluation of Crumb Rubber Modified Asphalt Pavements
SPR–2 (174)

Section 1038 of the Intermodal Surface Transportation Efficiency Act requires each state highway agency to use crumb rubber modifier (CRM) in asphalt pavements beginning funding year 1994. In response to this legislation, FHWA and 33 participating state highway agencies initiated a 1993 pooled–fund study to address the long–term performance and recycling concerns associated with use of CRM. The current study will examine the long–term field performance of in–service pavements annually for 5 years. The data generated in this study will be used to develop pavement structural and mixture design and construction specifications to properly implement use of CRM. Considering the 1994 implementation mandate and that little difference in performance is expected between control and CRM pavement test sections within 5 years, there is a need to rapidly accelerate pavement damage and generate performance data to develop pavement structural design criteria. This can be accomplished efficiently and effectively through use of accelerated pavement testing.

The objectives of this study are:

1. Design and construct 8 to 12 CRM and control pavement test sections at the Turner–Fairbank Highway Research Center Pavement Testing Facility.

2. Generate early performance data (rutting and fatigue) through use of two Accelerated Loading Facilities.

3. Validate and recommend pavement structural design methods and performance prediction models.

New York State Contributions:

FFY 1994 — $10,000

FFY 1995 — $10,000

FFY 1996 — $5,000

New York State Department of Transportation
Transportation Research and Development Bureau

Development of Standard Reference Soils
SPR–2 (175)

The program is of national importance to all soil testing and quality control offices. Briefly, it is an interlaboratory testing program that will include 13 commonly used ASTM/AASHTO geotechnical methods and involve some 24 voluntary laboratories distributed across the United States. The test results will be used to develop reliable precision statements for the selected standards. Four soils, which represent a wide range of typical deposits, will be used for the program. Large quantities of each soil will be processed to provide sufficient material for testing, and stockpile for commercial use will be established. At the conclusion of the program, the standard reference soils will be stockpiled and made available for quality assurance and quality control programs, research applications, and educations and training, The revenue generated from sell of the soils will be used to replenish the stockpile.

New York State Contributions:

FFY 1994 — $5,000

FFY 1995 — $5,000

FFY 1996 — $5,000

New York State Department of Transportation
Transportation Research and Development Bureau

Seasonal Changes in Pavement Material Properties
SPR-2 (178)

The Minnesota Department of Transportation is currently conducting a full-scale pavement test facility (MN/ROAD) similar in magnitude and scope to the facility built for the AASHO Road Test in Illinois. The MN/ROAD facility incorporates extensive instrumentation in its 14 rigid pavement test sections, 22 flexible pavement sections and 4 aggregate test sections. The University of Minnesota and MN/DOT have developed work plans for portions of the research to be undertaken, and are requesting participation from other states interested in pavement research.

Research Objectives

One of the most important factors affecting performance of rigid and flexible pavements is the seasonal changes in material properties. The ability to predict these changes and their impact on pavement response is necessary in accurately assessing damage done by vehicle loads. In the past, it has been costly and time-consuming to obtain this type of information. With construction of the MN/ROAD Research Project, the information needed to monitor seasonal changed will be readily available from in-situ and intensive field testing.

The objectives of this study are to:

1. Monitor the changes in the parameters affecting the material properties (e.g., temperature, moisture content, and state of moisture).

2. Estimate the material properties during various time periods by backcalculation of deflection data.

3. Compare the material properties from laboratory test with those from field tests.

4. Compare backcalculated moduli with those obtained from the FHWA Integrated Model for climatic effects on pavement.

A work plan will be prepare to establish daily and seasonal FWD testing programs at MN/ROAD. The material properties will be backcalculated using EVERCALC, WESDEF, or MODULUS. Both spatial and seasonal variability in material properties will be addressed. The results from FWD deflections will also be compared with those predicted from the FHWA Integrated Model for climatic effects on pavement. The actual pavement response will be compared with design values used to predict performance of various pavement sections.

Background

Most empirical design procedures do not allow for consideration of material properties which vary with time. The 1986 AASHTO pavement design procedure uses a weighted average

approach for subgrade conditions (flexible pavements) or subbase and subgrade conditions (rigid pavements). Also, damage factors which are used in obtaining weighted averages for sublayer conditions are not necessarily universally applicable.

In the mechanistic–empirical approach, material properties can be varied to reflect conditions at any given time. Thus, it is necessary to accurately know how material properties change in order to use this type of design procedure. Furthermore, it would be beneficial to assess how these changes influence behavior of the pavement system.

The MN/ROAD Research Project is an ideal location to investigate these issues. Subsurface instrumentation is in place to measure temperature and moisture content from the surface to a depth of 8 feet. The state of moisture in underlying layers may be measured with resistivity probes. Deflection testing with the falling weight deflectometer will be conducted on a regular basis throughout the year.

New York State Contributions:

FFY 1994 — $7,500

FFY 1995 — $7,500

New York State Department of Transportation
Transportation Research and Development Bureau

Load Testing of Instrumented Pavement Sections
SPR-2 (179)

The Minnesota Department of Transportation is currently conducting a full-scale pavement test facility (MN/ROAD) similar in magnitude and scope to the facility built for the AASHO Road Test in Illinois. The MN/ROAD facility incorporates extensive instrumentation in its 14 rigid pavement test sections, 22 flexible pavement sections and 4 aggregate test sections. The University of Minnesota and MN/DOT have developed work plans for portions of the research to be undertaken, and are requesting participation from other states interested in pavement research.

Research Objectives

One of the fundamental elements of pavement design is understanding how loads of differing magnitudes and configurations affect performance of pavement structures. Parameters such as total weight, axle spacing, tire location, and tire pressure significantly influence pavement responses (i.e., stress, strain, and deflection). Likewise, seasonal changes in material properties must be considered when examining pavement behavior under loads. The pavement responses will be indicators of the load-related distresses which ultimately dictate failure of the structure.

The objectives of this are to:

1. Load instrumented flexible and rigid pavement sections at MN/ROAD with various axle and tire configurations at different speeds.

2. Monitor pavement responses under these conditions while tracking material properties through instrumentation and testing.

3. Compare results of testing to those obtained from 3-D models developed for flexible and rigid pavements.

A detailed plan will be developed for load testing instrumented pavement sections after construction and prior to opening the facility to interstate traffic and for the first year of unrestricted traffic. Test vehicles will be comprised of tractor-trailer combinations and dump trucks loaded to produce desired gear weights. A range of rigid and flexible pavements will be selected for testing. Data collection will consist of obtaining time histories of responses on a number of runs for the same vehicle and location. Data from the sensors will be correlated with the position of the loads. Comparisons will be made between gear configurations and maximum values of pavement responses on the various sections in order to asses the relative damage due to each load.

The 3-dimensional finite element model will be calibrated using the sensor readings over a variety of test sections. Consideration will be given as to the best match between material behavior (linear elastic, non-linear elastic, inelastic) and actual pavement responses.

Background

Currently, pavements are designed by empirical means such as the AASHTO procedure in which axles of different configurations and weights are converted to 18,000–lb equivalent single axle loads using a so–called "Fourth Power Law." An averaging procedure is used to account for seasonal changes in sublayer properties, but pavement layer properties are considered in nebulous terms such as structural coefficients.

The state–of–the–practice is moving toward use of mechanistic–empirical approaches which are less limiting in their applications. However, traffic is still usually presented in terms of equivalent single axle loads rather than accounting for actual responses from various loads, configurations, and distributions.

Dynamic pavement models exist which may be used to evaluate pavement responses under either stationary or rolling dynamic loads. Such a model was developed at the University of Minnesota for the Minnesota Department of Transportation. The first version of this program was a 3–dimensional model capable of handling a stationary dynamic load with linear elastic models. The version currently under development will be able to consider joints in the surface layer and non–linear and inelastic material behavior in lower layers. Other future improvements may include use of infinite elements at boundaries to preclude artificial wave reflections and use of super elements in the vicinity of the load.

The Minnesota Road Research Project will be an ideal facility for calibrating such mechanistic models since the instrumentation will be capable of providing measurements of stresses, strains, and deflections. The close monitoring of changes in material properties will facilitate interpretation of results from the sensors.

New York State Contributions:

FFY 1994 — $12,500

FFY 1995 — $12,500

New York State Department of Transportation
Transportation Research and Development Bureau

National Vehicle Detector Test Center
SPR-2 (181)

The FHWA FY 1991 study "Detection Technology for IVHS" evaluated the performance of existing commercially available electronic surveillance systems to be used for IVHS applications. Given that the study was only testing detectors available at that time, this funding action purposes to provide for the establishment of a self-supporting national detector test center(s) to enable the testing of "new" sensors not tested in other FHWA studies. The objective is to determine if the surveillance/detection requirements developed under the study, "Development & Lab Testing of New Detection Technologies & Surveillance Concepts" are met for IVHS applications. The seed money will be used to facilitate the establishment of self-supporting facilities to test and evaluate these technologies and avoid the need for FHWA to repeat this effort.

New York State Contributions:
FY 1995 - $20,000
FY 1996 - $20,000

New York State Department of Transportation
Transportation Research and Development Bureau

Development and Validation of Traffic Data Editing Procedures
SPR-2 (182)

All states are involved in Traffic Data Program(s) that involve traffic counting, Automatic Vehicle Classification (AVC), and Weigh-in-Motion (WIM) activities. The study will develop automated editing procedures for the count, classification, and WIM data. The products will include software for identifying "questionable/invalid" data, processing the edited (acceptable) data and appropriate reporting of processed data.

New York State Contributors:
FY 1995 - $15,000
FY 1996 - $15,000
FY 1997 - $15,000

New York State Department of Transportation
Transportation Research and Development Bureau

Noncontact, Nondestructive Determination of Pavement Under a Moving Load
SPR-2 (S-94-4)

A research study of the same title, conducted for Ohio DOT by Surface Dynamics developed a conceptual design of a deflection measuring system to operate at travel speeds. Informal contacts with several state highway engineers generated interest in this equipment. The proposed pooled-fund study is for the detailed design and construction of a prototype system. In performing this work the design concepts and hardware recommended in the final report shall be followed unless verifiable evidence is presented to indicate that this concept is unworkable or better approaches are available.

Accurate measurement of small deflections of the pavement surface is difficult with stationary equipment and more so at travel speeds. To overcome the expected problems the proposed work is divided in to 11 tasks and provides for several stages of review with options to discontinue the development if insurmountable problems are encountered. Furthermore, an independent review of the proposed design, including an error analysis based on component specifications, will be made before awarding the contract. This approach should minimize the risk in undertaking an admittedly difficult project.

New York State Contributions:
FFY 1995 - $ 0
FFY 1996 - $ 20,000
FFY 1997 - $ 20,000
FFY 1998 - $ 20,000

New York State Department of Transportation
Transportation Research and Development Bureau

Long-Term Field Monitoring of Migrating Corrosion Inhibitors S-95-7

The rehabilitation of corrosion-damaged, and chloride-contaminated concrete structures has become a major activity within state bridge maintenance programs. In many cases, repair techniques include the removal of deteriorated concrete, which is then replaced with new concrete, in the form of patches or an overlay. Although new concrete generally provides a passive environment for reinforcing steel, corrosion may continue, or be initiated due to potential differences between the new and old concrete. The use of corrosion inhibitors is one of the techniques used to mitigate continued corrosion of the reinforcing steel in the newly rehabilitated structure. These inhibitors are usually either applied to the scarified surface prior to patching, or included as an admixture to the patch material.

As part of SHRP Contract C-103, four (4) of the most promising corrosion inhibitors for these applications were tested and evaluated under laboratory conditions. Although positive results were obtained using actual bridge deck specimens, the need exists to evaluate these inhibitors on in-service structures.

The monitoring of full-scale treatments is proposed to gain more data on the length of time that the various inhibitors are actively providing protection, and environmental conditions that aid or hinder their effectiveness. Also, a field evaluation project would provide cost data for full-scale treatments. In addition to further evaluation of inhibitor effectiveness, a field study would identify special procedures and precautions that are required for success of the treatment. These include: construction delays associated with the use of inhibitors; how bond strength of the new concrete is effected, including procedures necessary to maximize the bond strength; and, the compatibility of the inhibitors with other corrosion protection methods.

These data could then be used to identify circumstances best suited for the use of inhibitors, and develop guidelines for proper application of the treatments.

New York State Contributions:
FFY 1996 - $6,000
FFY 1997 - $6,000
FFY 1998 - $6,000
FFY 1999 - $6,000
FFY 2000 - $6,000

New York State Department of Transportation
Transportation Research and Development Bureau

Use of Lane Striping and Delineators to Control Vehicle Speeds in Work Zones S-95-14

The purpose of this study will be to determine if the use of alternative striping and lane delineation techniques can decrease vehicle speed in work zones without sacrificing driver safety or reducing lane widths and clearances. It is proposed that striping and lane delineators be placed so as to make the driver feel as though the lane they are driving in is narrower than it is or they are driving at an excessive speed. This is to be done without physically reducing lane widths or reducing clearances between oncoming traffic and work zones. The goal is to make the driver feel uncomfortable driving at higher speeds without reducing safety.

Speed studies will be conducted to compare standard work zones to alternatively striped and delineated work zones. Preferably, this study could be carried out on an interstate reconstruction project where opposing traffic is shifted to one set of lanes. This would allow the set-up of standard striping and delineation on one lane as a control and the alternative techniques on the other lane for testing. Since the same work zone would be used for both the test lane and the control lane, environmental effects of two different locations can be ignored. No radar should be used so as to gain the most accurate record of speeds.

New York State Contributions:
FFY 1996 - $30,000

New York State Department of Transportation
Transportation Research and Development Bureau

Roadside Safety Hardware Crash Tested to NCHRP Report 350
S-95-35

NCHRP Report No. 350 contains recommended procedures for crash testing and evaluating highway safety features. The objective of this study is to use finite element analysis and crash tests to evaluate various types of safety appurtenances that would be used in several States that were not tested in other programs.

New York State Contributions:
FFY 1996 - $5,000
FFY 1997 - $5,000
FFY 1998 - $5,000
FFY 1999 - $5,000

New York State Department of Transportation
Transportation Research and Development Bureau

Support, Maintenance and Refinement of the National Transportation Control/ITS Communication Protocol (NTCIP) S-95-45

The NTCIP is a collection of public domain communication protocols which standardize the interconnectivity of traffic control devices and traffic control centers. These protocols are being developed to ensure the integration of ITS technologies with existing and future electronic highway infrastructure. Although the current development effort is focusing on the interconnectivity of traffic signal controllers, efforts to develop communications protocols for variable message signs, ramp metering devices, closed circuit television systems, highway advisory radio, and other related devices are already underway.

The objective of this effort is to provide for the support maintenance, and refinement of the protocol over the next five years.

At least two States have already passed legislation requiring interconnecting capability among the different traffic control devices and it is expected that other States will also follow this trend.

New York State Contributions:
FFY 1996 - $5,000
FFY 1997 - $5,000
FFY 1998 - $5,000
FFY 1999 - $5,000

SECTION VI

Administration/Training

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: 10-01 ADMINISTRATION

SCOPE: A variety of recurring activities are required to administer the Bureau's research program. Charges are made on the basis of the particular service or function performed within the following categories:

Managerial Operations: The day-to-day activities which involve aspects of this Bureau's administration (e.g., inquiries, explanations, and justifications) which must be delegated, clarified, followed up, and finally resolved. These activities also deal with the broad general aspects of administration such as policy, procedures, balance, and funding of the research program. These tasks are performed exclusively by the Director, Section Heads, and Administrative Assistant. The level of effort varies among these individuals depending on their specific responsibilities and assignments.

Program Development: Efforts required to prepare and publish the Bureau's Federal Highway Planning and Research Work Program, and the submission of appropriate projects for consideration in the National Cooperative Highway Research Program (NCHRP), or to FHWA for consideration for administrative contract work, pooled-fund studies, or FHWA research are charged to this function.

Program Control: Activities under this function involve monitoring expenditures and work accomplished in relation to projected progress schedules and budgeted costs. It also concerns efforts directed toward ensuring that the research remains within the stated scope and objectives, and that marginal work or work which is no longer considered necessary by the requesting program manager is terminated.

STATUS: Continuing

ESTIMATED 1995-96 COSTS: $250,000

08/21/1995 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 6/F19 PROJECT STATUS REPORT
IAS RUN DATE IS 06/29/1995 FHWA SEMI-ANNUAL

PROJECT: R01001881 TITLE : ADMINISTRATION
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT :
CONTRACTOR :

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 250000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	240848	240848	250000	250000	182692	182692
TOTAL COSTS	240848	240848	250000	250000	182692	182692

08/21/1995 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 6/F19 PROJECT STATUS REPORT
IAS RUN DATE IS 06/29/1995 FHWA SEMI-ANNUAL

PROJECT: R01002881 TITLE : ADMINISTRATION - ERTAP PROCESS
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT :
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 45000

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	16435	16435	45000	45000	32885	32885
TOTAL COSTS	16435	16435	45000	45000	32885	32885

New York State Department of Transportation
Transportation Research and Development Bureau

PROJECT: **16-0 TRAINING**

OBJECTIVE:

SCOPE:

1. On October 25 & 26, 1994, Faizal Enu attended a workshop for future trainers on the course entitled "Becoming Culturally Competent in a Diverse Work Environment." He will be providing this training 3 or 4 times per year to NYSDOT employees.

2. Sreenivas Alampalli attended the NHI training course, "LRFD Design of Highway Bridges" which was held October 3-7, 1994 in Albany, NY.

3. Julian Bendaña, Makbul Hossain and Dan McAuliffe attended NHI Techniques for Pavement Rehabilitation training on November 1-4, 1994.

4. Cheng Chou attended a professional writing course.

5. Rick Morgan and Frank Owens attended the NHI Materials Control and Acceptance-Quality Assurance training on November 28 - December 2, 1994.

6. Ruijia Mu attended a 15-hour workshop entitled "Professional Writing for Non-Native Speakers of English." The workshop was offered by the Public Workshops Program and scheduled for weekly meetings between November 15 and December 13, 1994.

7. On December 20, 1994, D. Sandhu attended a one-day course entitled, "Women As Leaders", organized by the Human Resource and Development Bureau.

8. On January 3-5, 1995, Michael Mathioudakis attended a course entitled, "Static and Seismic Slope for Waste Containment Facilities," offered by the University of Wisconsin-Madison, in Saratoga Springs, New York.

9. Wes Yang attended the NHI Highway Materials Engineering Training Course from January 30 to March 17, 1995 in Reno, Nevada.

10. Sreenivas Alampalli attended a course entitled "Bridge Design and Highway Construction" by Demetrios (Jim) Tonias of Union College on March 14 and 16, 1995. This course was sponsored by PEF.

11. On April 25, 1995, Robert Valenti and Makbul Mathioudakis attended the first meeting of the Local Bridge Conference Subcommittee on Training in Binghamton, New York. This subcommittee consists of representatives from the Department, local governments, FHWA, industry, Cornell Local Roads Program, and consultants. The meeting targeted identifying training needs of town and county engineers. Follow-up actions include identifying possible avenues for providing needed training to these parties.

12. A document entitled, Guidelines for Department Project Managers, which incorporates evaluation criteria and payment guidelines to be used by Department project managers of contract research projects, has been developed. The document has been reviewed by the Contract Management Bureau and current contract research project managers. Their input has been incorporated.

13. April 4-6, 1995, Sam Elrahman attended a 3-day NHI course entitled, "Intelligent Vehicle Highway System (IVHS) Planning and Functional Requirements."

14. Dan McAuliffe received a UTRC Scholarship to complete his M.S. degree in Civil Engineering. Faizal Enu also received a UTRC Scholarship to complete his M.S. degree in Civil/Transportation Engineering.

15. A three-day FWD Software training course was completed May 10, 1995. A total of sixteen personnel from Technical Services Division attended. Of the sixteen, six from the Materials section attended: Wes Yang, Makbul Hossain, Julian Bendaña, Tom VanBramer, Dan McAuliffe, and Hong Jer Chen. FWD 1994 data analysis completed using the "MODULUS" backcalculation program.

16. As a response to the needs identified by the Sub-Committee on Training and Communication of the Local Bridge Conference Steering committee, Robert Valenti and Michael Mathioudakis arranged for three speakers to talk about bridge inspection and light corrective maintenance activities at this year's Annual Highway Superintendents School.

17. Julian Bendaña and Cheng Chou attended NHI Course No. 13442"Materials Control and Acceptance Quality Assurance" July 24-28, 1995.

18. On July 11-13, 1995, Michael Mathioudakis attended an NHI course on "Urban Drainage Design."

19. On June 5 and 6, 1995, Robert Valenti and Michael Mathioudakis attended the 1995 Annual Highway Superintendent's School in Ithaca, New York. Robert Valenti participated in the school's planning committee session and Michael Mathioudakis assisted with two workshop presentations on the subject of local bridge awareness.

STATUS: Continuing

ESTIMATED 1995-96 COSTS: $70,000

CLIENT: All Department Units

08/21/1995
THRU PAY PERIOD S 6/F19
IAS RUN DATE IS 06/29/1995

NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
PROJECT STATUS REPORT
FHWA SEMI-ANNUAL

PROJECT: R01600881 TITLE : TRAINING
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT : VARIOUS
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 70000

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	50059	50059	70000	70000	51154	51154
TOTAL COSTS	50059	50059	70000	70000	51154	51154

SECTION VII

Completed Projects

New York State Department of Transportation
Transportation Research and Development Bureau

PUBLICATIONS DURING THE PERIOD 10/1/94 - 9/30/95

RESEARCH REPORTS

RR 162	Separation and Re-Use of Hazardous Waste from Bridge-Paint Removal	12/94
RR 163	Highway Bridge Rating by Nondestructive Proof-Load Testing for Consistent Bridge Safety	4/95

SPECIAL REPORTS

SR 114	Membranes for Pavement/Shoulder Joints	12/94
SR 115	Heat Transfer from Vehicular Catalyst to Pavement	11/94
SR 116	Night-Time Construction Operations	12/94
SR 117	Effects of Curing on Bridge Deck Shrinkage Cracks	3/95
SR 118	Rehabilitation of Faulted Joints in Rigid Pavements	3/95
SR 119	Compression Testing of Concrete: Cylinders vs Cube	3/95
SR 120	Fluorescent Strong Yellow-Green Signs for Pedestrian/School/Bicycle Crossing: Results of a New York State Study	6/95

OTHER PUBLICATIONS

Implementing SHRP Products in New York: Second Semiannual Report 4/95

Transportation R&D News (quarterly newsletter)

TNT Technology News Transfer (quarterly newsletter)

ITS News: Intelligent Transportation Systems for New York (semiannual newsletter)

New York State Department of Transportation
Transportation Research and Development Bureau

The following experimental feature is evaluated as part of an SPR project and placed on federal-aid construction.

Experimental Features Project Number	NYSDOT Research Project Number	Project Name
NY 91-02	208-1	Inspection and Evaluation Tools for Bridges

SECTION VIII

100% State Funded Projects

08/23/1995 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 6/F19 PROJECT STATUS REPORT
IAS RUN DATE IS 06/29/1995 FHWA SEMI-ANNUAL

PROJECT: R01001801 TITLE : ADMINISTRATION STATE FUND EFFORTS
SECTION: ADMINISTRATION INVESTIGATOR: ALL SECTIONS
CLIENT : N/A
CONTRACTOR :

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 90000

PROJECT INITIATION DATE : 10/01/1994
STUDY PROPOSAL DUE : 03/30/1995
STUDY PROPOSAL COMPLETED: 10/01/1994
STUDY PROPOSAL APPROVED : 10/01/1994
ORIGINAL COMPLETION DATE: 09/30/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 0

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	69551	69551	90000	90000	65769	65769
TOTAL COSTS	69551	69551	90000	90000	65769	65769

08/23/1995 NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
THRU PAY PERIOD S 6/F19 PROJECT STATUS REPORT
IAS RUN DATE IS 06/29/1995 FHWA SEMI-ANNUAL

PROJECT: R01239801 TITLE : UTRC - CURING
SECTION: MATER./PAVING INVESTIGATOR: CHOU
CLIENT : STRUCTURES/MATERIALS
CONTRACTOR : RPI

PROJECT INITIATION DATE : 01/20/1993
STUDY PROPOSAL DUE : 07/19/1993
STUDY PROPOSAL COMPLETED: 02/05/1993
STUDY PROPOSAL APPROVED : 09/01/1994
ORIGINAL COMPLETION DATE: 08/31/1997
REVISED COMPLETION DATE : 08/31/1997
REVISION NUMBER : 0

APPROVED STUDY PROPOSAL AMOUNT : 5000
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 35000

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	22239	49224	5000	15000	3654	3654
TOTAL COSTS	22239	49224	10000	30000	7308	7308

OBJECTIVE: To perdict the temperature and water fraction profiles that exist during the first 72 hours of curing in concrete pavements and bridge decks and to determine under what conditions concrete can be successfully placed.

PROGRESS: (1) Improvements for experimental procedures, such as measurements of radiation, location of thermocouples have been proposed. (2) A field experiment for verifying the revised mathematical model for Class H concrete bridge deck curing process by an improved experimental procedure was conducted.
SIX-MONTH PLAN: (1) Other field experiments for verifying the revised mathematical model for modified Class H concrete bridge deck curing process by an improved experimental procedure will be conducted. (2) Obtain reliable data on the overall rate of hydration reaction and diffusivity of water in the concrete.

08/23/1995
THRU PAY PERIOD S 6/F19
IAS RUN DATE IS 06/29/1995

NEW YORK STATE ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
PROJECT STATUS REPORT
FHWA SEMI-ANNUAL

PROJECT: R01242801
SECTION: TECH/TRAN

TITLE : UTRC - WICK DRAIN DESIGN RESEARCH
INVESTIGATOR: GEMME
CLIENT :
CONTRACTOR : RUTGERS UNIVERSITY

APPROVED STUDY PROPOSAL AMOUNT : 1
ACTUAL STUDY PROPOSAL AMOUNT : 0
APPROVED ORIGINAL BUDGET AMOUNT: 22000

PROJECT INITIATION DATE : 05/17/1993
STUDY PROPOSAL DUE : 11/13/1993
STUDY PROPOSAL COMPLETED: 05/17/1993
STUDY PROPOSAL APPROVED : 05/17/1993
ORIGINAL COMPLETION DATE: 03/31/1995
REVISED COMPLETION DATE : 09/30/1995
REVISION NUMBER : 1

	ACTUAL EXPENDITURES		PROGRAMMED EXPENDITURES			
	YTD	LTD	YEAR TOTAL	LIFE TOTAL	YTD SCALED	LTD SCALED
PERSONAL SERVICE	3459	6039	3000	22000	2192	20192
TOTAL COSTS	3459	6039	3000	22000	2192	20192

OBJECTIVE: To gain knowledge on the stabilization of compressible soils by means of vertical wick drains.

PROGRESS: 1. Preliminary laboratory testing of the Buffalo project clay has been progressed at Rutgers University in the equipment fabricated by the Materials Bureau. Problems at Rutgers with the fabrication of a neoprene bladder to create uniform loading on the clay specimen and the repair of the loading machine have created delays in progressing this very important phase of the research.

2. All field and laboratory data has been summarized in a draft report to be completed when the laboratory testing is complete.

SIX-MONTH PLAN: Rutgers University will complete the necessary laboratory tests and summarize and analyze the data with consultation with GEB and they will then publish a final report with conclusions and recommendations.

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